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Subscriptions—In the United States, its possessions, and Mexico, \$5.00 yearly; Canada, \$5.50; elsewhere, \$6.50 the year.

Advertising rates on application. All advertising copy subject to acceptance by publication committee.

Published monthly at Chicago, Illinois, by American Congress of Physical Therapy.

Entered as Second Class Matter June 2, 1930, at the Post Office at Chicago, Illinois, under the Act of March 3, 1879.

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Suite 716 — 30 North Michigan Avenue, Chicago, Illinois

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CONTENTS—JUNE, 1932

Volume XIII, No. 6

ORIGINAL ARTICLES

Direct Internal Irradiation of Ultraviolet to the Bladder.....	John R. Caulk, M.D. and F. H. Ewerhardt, M.D.	325
Massage.....	Ralph Pemberton, M.D.	328
The Relation of Light to Health and Disease.....	Edgar Mayer, M.D., F.A.C.P.	336
Consideration of Some Problems in Electrocoagulation of Tonsils.....	L. L. Doane, M.D., F.A.C.S.	341
The Removal of Pathological Tissue <i>En Massa</i> by Insulated Cutting Instruments and the Electro-surgical Snare.....	Joseph Prenn, M.D.	345
Detailed Program of Annual Session.....		347
Schedule of Daily Activities.....		348
Report of the New York State Committee on Physical Therapy.....		361
Hotel New Yorker Chosen as Convention Headquarters.....		363

EDITORIALS

D'Arsonval Banquet to Honor American Congress Visitors to France.....	365
Special Post-Graduate Instruction at Columbia University.....	366

SPECIAL SECTION

Correspondence — Further Comments on Amalgamation.....	367
Current News and Science.....	369

THE STUDENTS' LIBRARY

Book Reviews	372
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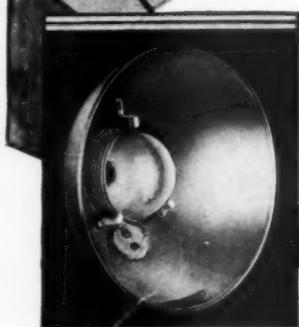
INTERNATIONAL ABSTRACTS

Abstracts of Articles on Physical Therapy, X-Ray, Radium, Biophysics and Allied Subjects.....	376
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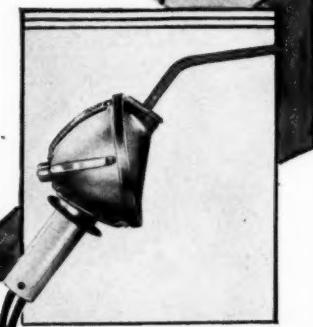
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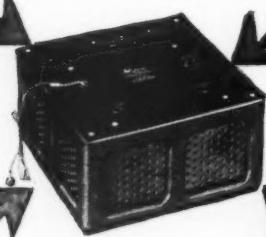
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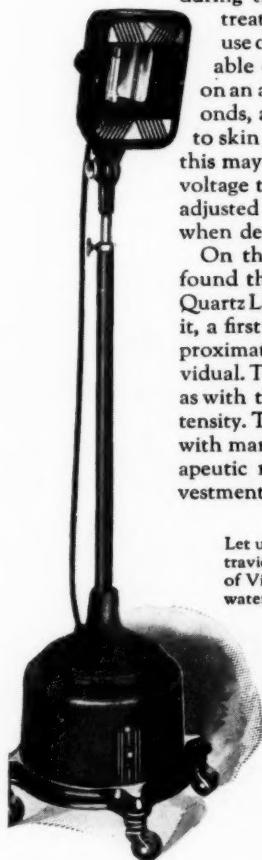
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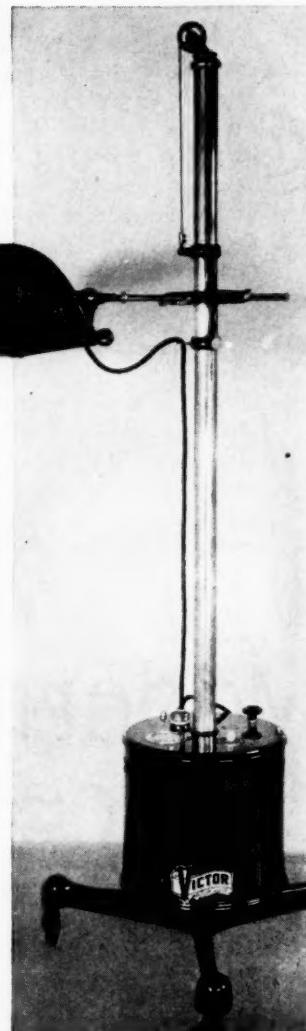
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DIRECT INTERNAL IRRADIATION OF ULTRAVIOLET TO THE BLADDER *

JOHN R. CAULK, M.D. and F. H. EVERHARDT, M.D.

ST. LOUIS, MO.

The reason for this communication is to acquaint the medical profession with a procedure which we believe to be new and helpful in the treatment of bladder infections. We express the wish that others will adopt and continue this method which has given such hopeful promise in the case to be presented.

Being so firmly convinced of the effectiveness of fresh air and sunshine in the treatment of general tuberculosis, it occurred to us that if it were possible to introduce these agents into the bladder, the healing of intractable vesical lesions resulting from tuberculosis could be hastened and innumerable patients given relief from suffering. Sufficient work has been done in the matter of determining the resistance of bacteria to ultraviolet rays to warrant the use of this medium in the treatment of various infections.

After the removal of a tuberculous kidney often times the angry vesical lesions promptly heal due to the relief of the tuberculin reaction created by the products which were generated in the kidney. There are, however, numerous cases which are exceedingly rebellious and demonstrate no such tendency to prompt healing. Many of them have secondary infections with other bacteria, particularly the colon bacillus, and resist the ordinary therapeutic measures which are currently employed. In cases of inoperable bilateral renal tuberculosis with marked vesical disturbances, the bladder condition is productive of intolerable symptoms which are incapacitating to the individual so afflicted.

One of us (J. R. C.) has recently observed such a patient from whom a tuberculous kidney was removed several years previously, the other kidney as far as can be determined is free from tuberculosis but the bladder ulceration has persisted and resisted all forms of local and general hygienic treatment including heliotherapy. For many months she has suffered severely as a result of a secondary colon bacillus infection superimposed upon

the tuberculous lesion. This patient, twenty years of age, was compelled to urinate from five to ten times at night and at least every hour during the day, and had showed no clinical improvement during the process of treatment throughout this period. Under these circumstances we felt that not only was this patient entitled to any and every therapy which might offer even a fair chance of improvement, but also that she was an ideal subject for a trial by our newly conceived idea.

With this thought in mind we have arranged a device whereby the ultraviolet ray is introduced directly into the bladder. A cold quartz orificial applicator was insulated to protect the urethra, and a channel for injection of air was incorporated along the insulating band. It was found to be perfectly simple to introduce both air and ultraviolet irradiation into the interior of the bladder which, as far as we can determine, is the first time it has ever been attempted.

The technic we employ is to first drain the bladder of as much fluid as possible. The instrument is then inserted into the urethra, the bladder inflated with air which is introduced through the tube by means of a blood pressure bulb attached to its distal end and repeated insufflations are administered, then with moderate distention of the bladder the ultraviolet rays are applied, the instrument being moved into different parts of the bladder cavity to insure general distribution of the rays. Being doubtful concerning the degree of irradiation the bladder would tolerate under such conditions, we started with a five second application and increased it five seconds each day for a period of a week. After four applications the colon bacillus infection which had been present for months promptly disappeared, the urine cleared and has remained free from secondary infection since. In the meantime the patient improved remarkably, indeed magically. At the end of this short period of treatment it was necessary for her to rise but once at night and she was

* From the departments of Urology and Physical Therapeutics, Washington University, School of Medicine, St. Louis, Missouri.

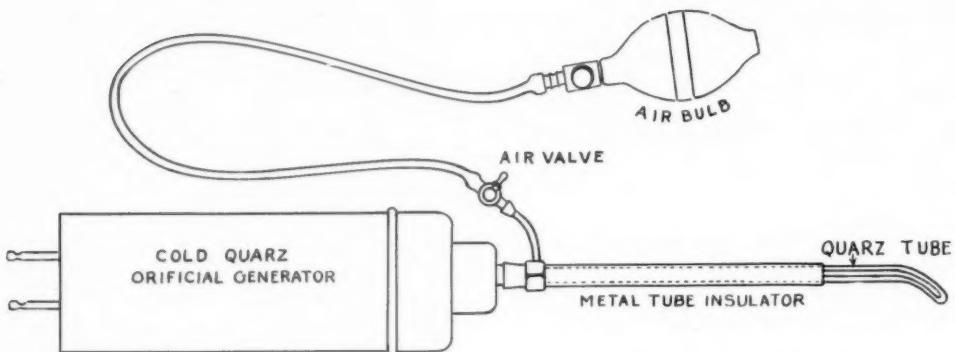


Fig. 1. Air bulb and valve attachment with metal sleeve over quartz tube.

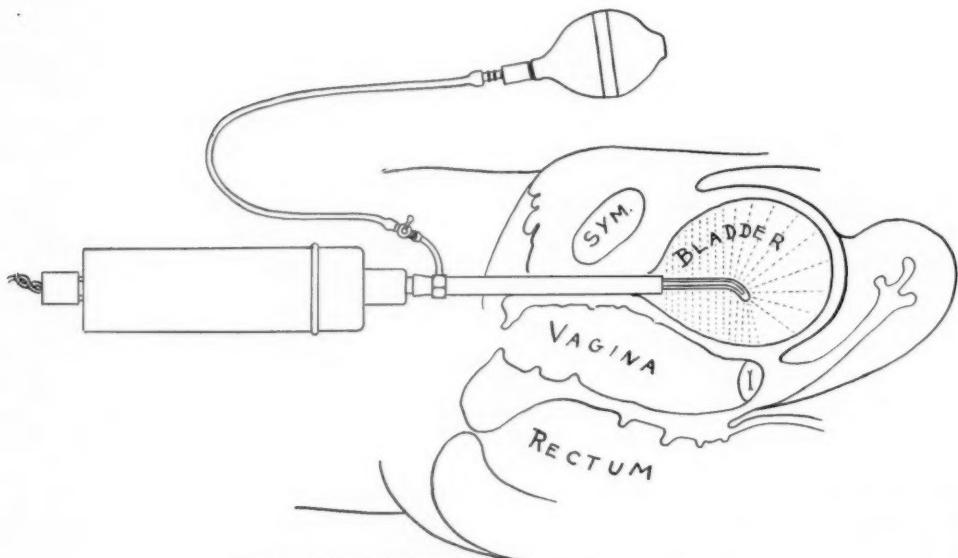


Fig. 2. Schematic demonstration of instrument *in situ*.

able to hold the urine three hours during the day and the pain had entirely subsided. The dosage was increased gradually to forty-five seconds and the frequency of applications diminished.

The patient has been cystoscoped repeatedly in order to observe the condition of the bladder. After the fourth application there was a generalized hyperaemia of the bladder wall, which remained for about eight days and gradually disappeared. The proliferative lesions in the bladder, the result of secondary cystitis, showed a tremendous recession within a week, and at the end of two weeks the tuberculous ulcerations were beginning to show decided evidences of healing.

Just what the outcome of this case will be, as far as the healing of the tuberculous lesions

is concerned, is problematical, since sufficient time has not elapsed to definitely predict; however, from the pronounced tendency demonstrated by these lesions to resist healing, it would seem that this method may possibly offer itself as a valuable adjunct in the treatment of tuberculous conditions within the bladder. It is very definite that in our patient this method of treatment promptly destroyed secondary infection due to the colon bacillus, since no other form of treatment was given during its administration, neither eosin nor any other dye was injected to disseminate the rays and no germicidal solutions were instilled after instrumentation.

The manner in which the rays cause death to the bacterium is probably due to an absorption effect by certain cells which in turn

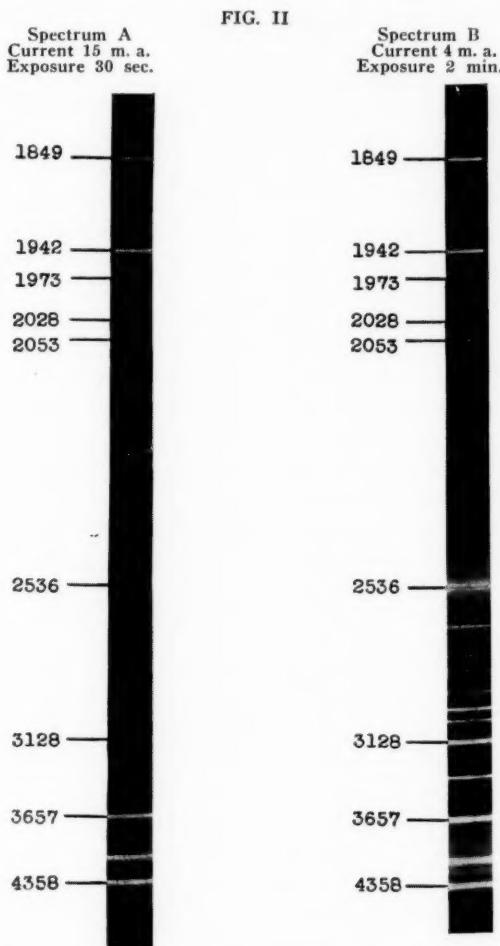


Fig. 3. Ultraviolet spectra emission through a Cold-Quartz orificial lamp (Hibben).

cause the death of the organism. Rahn, in a recent paper, states, "The death of bacteria can be accounted for by the assumption of some very unstable molecules so essential for reproduction that the inactivation of only one such molecule per cell can prevent reproduction and makes the cell appear 'dead' according to the standing method of counting living bacteria." It has also been established that various species of bacteria have an inherent quality of greater or less resistance to exposure, both with regard to intensity and to wave length.

The field of bactericidal effect in the spectrum appears to range from a wave length of 3130 Å. to 2250 Å. with the maximum lethal action probably within the range of 2700 Å. to 2500 Å., although workers in this field of radiation are not in entire accord with their findings.

In view of these findings it seemed to us a plausible conclusion that tubercular, as well as other infections of the bladder, could be rationally treated if a way could be found of applying direct irradiation to the walls of the bladder. This we were able to accomplish by means of the device mentioned above.

For our first application we chose to use the cold quartz generator, first, because of its extraordinary intensity in the wave band of 2537 Å., which lies well within the range of maximal lethal effect, according to numerous workers; second, because of its property to emit the rays laterally, as well as along the long axis of the applicator, thus producing irradiation in all directions within the field of the distended bladder, and conforming to a law that when the ultraviolet ray strikes a surface at right angle it exerts its greatest potency.

MASSAGE *

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PHILADELPHIA, PA.

Physiology of Massage

Explanation of the influence of massage has been long in forthcoming, although use of the measure itself, goes back to the earliest periods of history. Clinical medicine and successful forms of treatment often run ahead of precise knowledge of the premises from which they arise. It becomes important, however, and even necessary, sooner or later, to acquire such precise knowledge. This is eminently the case with that measure of therapy known as massage. Not only is knowledge of the nature of the influence which massage exercises desirable on physiologic grounds, and because of the light thus incidentally thrown on pathologic processes favorably affected by it, but especially today is it important to refer, if possible, the alleged benefits from this measure to definite facts and principles rather than to clinical impressions, with the aim of counteracting the obloquy that misuse of massage has, in some part, cast on it. There is probably no other measure of equal known value in the entire armamentarium of medicine which is so inadequately understood and utilized by the profession as a whole. Although the clinical results of massage are undoubted and often graphic, it has been and still is difficult to determine the factors that are most directly operative.

A great deal of investigative work was carried out in the latter part of the last century, more or less contemporaneously with the development of the so-called Swedish school of physical therapy, and in 1910 Rosenthal¹ reviewed the literature to date in a monograph on the scientific basis of massage. Since that time, however, more modern methods of physiologic and chemical investigation have been developed, and the subsequent literature from this standpoint has not been extensive. Most of the data to be derived by studies along these lines are of a negative nature, but they serve nevertheless to delimit the problem in a fairly satisfactory manner.

* Read at the New York Physical Therapy Society Seminar,
March 4, 1931.

A number of the investigators of twenty or more years ago observed an increased excretion of urinary nitrogen following massage. Bendix² and Voight³ carried out more carefully conducted experiments in which the food intake of the subjects studied was controlled. These workers independently observed an increased excretion of nitrogen during the twenty-four-hour period in which massage was administered, and a heightened excretion of urinary nitrogen continued decreasingly for several days after the administration of massage, before it returned to the previous level. According to Eccles⁴ there takes place an increased output of uric acid on those days during which massage is given. In line with these indications of the influence of massage on metabolism were the observations of Leber and Stüve,⁵ who reported an increase of from 10 to 15 per cent in the oxygen consumption and carbon dioxide production following either general or abdominal massage. Diuresis has been a consequence frequently observed by many workers,⁶ and this diuresis may persist for several days.

Influence on Metabolism

In the attempt to ascertain more accurately the specific influence, if any, of massage on certain factors in metabolism, an effort was made by me and my associates⁷ to determine the rate of excretion of several other constituents of the urine. For this purpose the hydrogen ion concentration, titratable acidity, sodium chloride, inorganic phosphorus, total nitrogen, creatinine and creatine were noted. The increased volume of urine noticed by others was again observed, especially after abdominal massage, and occasionally there was a true diuresis. It is probable that this diuresis is due in part to the abdominal pressure exercised, as Griffith and Hansell⁸ found diuresis to occur following abdominal pressure alone, and Bazett and his associates⁹ observed it following pressure of water on the abdomen during immersion of the body in a bath. Herxheimer, Kost and Wissing,⁶ however,

believed the diuresis to be referable to a direct effect on the muscular tissues, either mechanical or by way of the nervous system. It is probable that the direct muscular influence and the abdominal influence are independent.

In the work of one of us⁷ the excretion of acid was not observed to be altered after massage, and there was no disturbance of the acid-base equilibrium of the blood. An increased rate of excretion of nitrogen, inorganic phosphorus and sodium chloride was observed more frequently following massage than during the control period. The rate of excretion of creatinine was apparently not influenced, and in no case was creatinuria induced. Kost¹⁰ and Schneider¹¹ found, in contrast to the earlier work of Leber and Stüve,⁵ that oxygen consumption was not influenced by the customary forms of massage unless associated movement was induced.

In general, therefore, the results described suggest a broad and generic influence, and that massage has no immediate or large effect on general metabolism per se. The cumulative effect which massage nevertheless exercises on various metabolic processes probably lies, as Rosenthal believed, in its mechanical influence on the circulation of the parts concerned.

Attention should be directed to other studies which substantiate this general point of view and furthermore make it possible more nearly to define the general nature of the influence of massage. Reference to this work will also be made under a discussion of the influence of heat, but it is appropriate again to direct attention to the matter at this point.

Complementary Action of Heat

It is generally recognized that massage achieves some of its best results, especially over limited areas of the body, when preceded by exposure of the given part to external heat. The complementary action of these two measures is therefore worthy of attention. Furthermore, it is generally recognized that massage, exercise and exposure to heat constitute a triad of measures or agencies which more or less replace or complement one another in the treatment of certain pathologic conditions, such as trauma to joints or muscular tissue and rheu-

matoid or arthritic processes in them. In a study of the respective physiologic influences of these three measures, however, certain sharp differences can be detected. With exposure of the whole body to heat, for instance, there takes place an acceleration of the rate of respiration and of the general circulation. One consequence of the increase of respiration is a washing out of carbon dioxide from the lungs. Sweating is also induced, and a small amount of carbon dioxide, together with small quantities of other acid products such as lactic acid, are eliminated through this channel. Salt and some nitrogenous constituents are also carried away in the sweat. The urine normally contains carbon dioxide and various quantities of acid substances, such as phosphates, sulphates and inorganic acids; but, following systematic exposure to heat, the amounts of these substances in the urine are increased.

The net result of these several processes is to remove from the body certain acid radicals, chiefly carbon dioxide, which creates within the body a relative alkalosis. The relative excess of alkali then alters the reaction of the blood, and the alkali itself is in turn eliminated through the sweat and the urine, producing an alkaline swing in each of them.

This general condition of alkalosis of the fluid tissues of the body following exposure to heat is in marked contrast to the results of exercise. Thus, Barr and his co-workers,¹² following the work of Haldane, have shown that actively contracting muscles bring about the production of lactic acid in amounts sufficient to change the reaction of the blood in the opposite direction, namely, toward acidosis. This increased acidity may persist for as long as fifty minutes after an amount of exercise equivalent to 3500 kilogram meters in three and one-half minutes. This is about comparable to the amount of exercise taken by a man weighing 150 lbs. (68 kg.) climbing 150 steps at the rate of one step a second.

It would appear that massage partakes somewhat of the nature of exercise, but studies from the chemical standpoint show that this is not wholly the case. After massage, given as vigorously as was clinically practicable to individuals unaccustomed to it, there developed none of the evidences of

acidosis, such as follows active exercise. There was no increase in the lactic acid of the blood, and the urine showed no constant increase in organic acids, as would have been presumably the case had lactic acid been produced and eliminated in the manner described by Wilson.¹³ After massage of considerable severity the hydrogen ion concentration of the blood showed no change comparable in magnitude to that following exercise of the extent mentioned. There took place in some cases a slight decrease in alkalinity, corresponding to changes observed by Barr after very mild exercise. It is to be borne in mind, however, that the massage administered was as vigorous as could be tolerated within therapeutic limits. There was furthermore no change in the percentage saturation of the blood with oxygen, such as follows exposure to heat, and there was therefore no evidence of a heightened rate of circulation. The oxygen capacity rose slightly, though unmistakably, a point that has a significance to be mentioned later.

Influence of Capillaries

Massage is accompanied, therefore, by neither the alkaline swing following exposure to heat nor the acid swing following active exercise. The apparent absence of detectable changes in the chemical equilibrium of the fluid tissues adequate to explain the benefits resulting from massage emphasizes the presumable influence of the mechanical factors accompanying and characterizing it. In this connection, Krogh and his co-workers have amply demonstrated the effect of external stimuli on the capillary circulation. Carrier¹⁴ has shown that light pressure produces an almost instantaneous though transient dilatation of the capillary vessels, although heavier pressure may produce dilatation of more enduring nature. Microscopic observation of fields in which only a few capillaries are open, and hence in which only a few can be seen, reveals that pressure of this kind may cause practically all the smaller vessels to become visible because of the blood flow created through them. According to A. E. Cohn,¹⁵ this general response may occur in very young blood vessels that are not innervated and is then apparently a direct function of the intensity of the stimulus. The influence thus exerted

on the total quantity of blood flow through a massaged area, and in the direction of sweeping along the stagnant cells lying inactive within it, needs no emphasis.

Further evidence illustrative of such an influence is to be seen in the effects of general massage on the blood count. Mitchell¹⁶ showed in 1894 that in both health and anemia the red cell count is increased after massage. This is especially the case in anemia, in which condition the increase is greatest one hour after treatment, beyond which period it slowly diminishes. Schneider and Havens¹⁷ have also shown that abdominal massage alone will increase the hemoglobin and red cell count in blood taken from the finger at ordinary barometric pressures. These workers have demonstrated that, following acclimatization to altitudes, the extent of such increases diminishes and the increases themselves finally cease. They interpret this finding as due to the lowered barometric pressure, which brings into the circulation many red corpuscles usually contained within closed or inactive areas. Scott,¹⁸ however, believes that concentration of the blood affords the explanation. At all events, the influence of massage in the direction of an increase in the hemoglobin and red cells of the circulating blood is beyond question, whether or not any factors additional to the mechanical influences are operative. The limited but definite rise observed, as already mentioned, in the oxygen capacity of the blood after massage also bears this out. It is difficult, therefore, to escape the conclusion, already mentioned, that an important influence of massage is on the local circulation of the parts treated, and so, more or less, on the circulating fluids of the body as a whole.

Influence on Fatigue Products

In contrasting the effects of active muscular exercise and those of passive muscular exercise in the form of massage, another point of importance emerges. The development of lactic acid in the circulating blood, and hence a systemic acidosis, may follow relatively mild exercise. As pointed out, massage given as vigorously as could be tolerated is probably as nearly comparable in severity to mild exercise as can well be the case in contrasting measures of a different order. Evidences of this severity are

to be seen in the fatigue experienced by the subject of the massage. It would therefore appear justifiable to conclude that, whereas lactic acid is produced by contraction of muscle following volitional effort on the part of the individual, it does not arise, at least in significant amounts, as the result of extraneous mechanical stimuli applied to the muscle within therapeutic limits. This is true also as regards stimulation of the muscle by the faradic current.¹⁹ This conclusion is of importance because it seems to explain the value of massage to the exercised muscles of human athletes and even of horses. This beneficial influence is well known to athletic trainers and is also widely utilized by them in connection with traumatized muscles. Were it not for the fact that massage produces no important additional amounts of lactic acid, its favorable influence on overexercised muscle could hardly be explained. In the absence of any further burden in this regard, changes in the blood supply of muscle brought about by massage permit presumably of more rapid or more thorough removal of the lactic acid already contained within such tissues.

Clinical and Mechanical Influence

While the more subtle physiologic and chemical changes following massage are difficult of measurement, it is easy to recognize clinically the mechanical value of this agency in returning fluid from the fixed tissues to the general circulation. This can well be seen in a gross way by observing the effect of upward stroking and massage on edema of the extremities following cardiac decompensation, and especially on the edema secondary to the dependent position of the feet sometimes encountered in chronic arthritis. In this general mechanical influence the lymphatics are probably also involved, though the extent of this is difficult of determination.

Another influence of massage should be mentioned from the clinical standpoint, although it would be unwise to make any postulates regarding it. It is generally accepted that at least some of the important phases of carbohydrate metabolism either take place in, or are inaugurated in, muscular tissue, which apparently shares with the liver a leading rôle in this respect.

Clinical recognition of this is to be seen in the accepted advocacy of controlled muscular exercise in diabetes. It is difficult to escape the suspicion that, under conditions of muscular atrophy, such as are seen, for example, in advanced cases of chronic arthritis, there can hardly be maintained that balance of general metabolism characteristic of the normal and well muscled individual. However this may be, there can be small doubt that definite clinical improvement occurs in individuals who are the subject of widespread muscular atrophy if the involved muscles are given the benefit of systemic and sustained massage. Improvement in the tone and firmness of the muscle runs roughly parallel with the general clinical betterment and constitutes part of a reconstructive cycle in which the better function, better posture and greater activity thus induced are important factors.

It would be improper to suppose that the general effects of massage on the circulation are brought about through mechanical agencies alone. There can be small doubt that the nervous system contributes under massage, probably through the sympathetic division, to a reflex influence on the blood vessels of the parts concerned. Dilatation of the small vessels following very light stroking affords illustration of the nervous mechanism operative. It is probable, therefore, that vessels within the muscular system or elsewhere are emptied during massage not by virtue alone of being squeezed but also through this reflex action. Because of this, or for other reasons, there seems to be exercised an indirect effect on the system as a whole which may take the form of mild stimulation, mild sedation or exhaustion. Under appropriate controlled circumstances, this influence should be mildly sedative or slightly stimulating but never exhausting.

Influence on Toxic Waste Products

Finally, it is important to bear in mind that in inactive persons, such as those confined to bed, massage may compensate for lack of that contraction of the muscles of locomotion on the larger blood vessels that normally contributes to the return of the venous blood to the heart. This influence of massage is available in certain stages of cardiac decompensation, but it is not utilized clinically to the extent that it should be.

While the influence of massage on the

end-products of metabolism is being discussed, it must be borne in mind that a necessary consequence of dysfunction of muscle tissue, for which massage is often indicated, is the production in the muscle of some of the products of dysfunction. Massage is capable of promoting the removal of some of these substances, as is well exemplified in its influence on the extravasations of blood and other kinds of debris consequent on traumatization of muscle or other tissue. The only medium of removal of these substances is the circulation, either the lymphatic or the blood vessel system. It follows, therefore, that the removal of these substances under the influence of massage involves an acceleration of those measures which nature, unaided, attempts. The economy as a whole, therefore, may find it difficult under some circumstances to adapt itself to this added quota of the products of faulty physiologic functioning. In certain individuals, chiefly the elderly and the feeble, this difficulty may express itself in terms of a mild toxemia accompanied by fever. What the substances are that produce this result it is impossible now to say with precision, but the consequence to elderly persons may be the addition of a toxemia other than the one from which the patient is already suffering. This is sometimes a practical matter of great importance.

Discussion

Dr. Robert Muller (New York): If we observe ourselves towards the end of an exhausting exercise, such as a walk of six or eight hours, we will find that our lower extremities may slightly ache. Later, during the rest which follows, we will have just a tired feeling but no pain. But then, when we arise, the slightest movement will be extremely painful. This continues until the next day because, as everybody knows, pains after strenuous exercise such as horseback riding, long distance walking, or swimming, may be worse the following day. If we disregard these pains, and in spite of them continue with this exercise, we will find that after a while we have considerably limbered up, and finally practically all our pain has disappeared.

If we retrospectively try to analyze what has happened, we see that something that gives us no pain while at rest, gives us, when we start to walk again, excruciating pain that eventually disappears if the exercise is continued. If we examine a person who has walked for a long time, we find that his feet are slightly swollen and that the veins on his feet are more prominent than usual. And that gives us the explanation of this form of pain; it is this diffused swelling be-

tween the muscles and between the muscle fibers that hinders free movement. Upon resumption of this exercise, this swelling is squeezed and pushed aside. The pressure in the tissues is suddenly increased and produces the pain. Once the swelling has been pushed aside, movement can easily and freely take place.

This symptom — that the beginning of a movement produces pain which disappears when the movement is continued — is found not only after strenuous exercise but is one of the most frequent complaints of patients suffering from all kinds of diseases in their joints and muscles. Whenever this symptom exists, we can be sure that accurate examination will always reveal an at least slight edema. This symptom is one of the chief complaints after fractures, often persisting for several months. But it is also one of the most important ones in osteo-arthritis, which is the form of arthritis which occurs in middle aged or old individuals in the weight bearing joints, such as at the ankle, knee, hip and spine. A certain puffiness over these joints and over the shinbones is so frequently found that it practically belongs to the typical picture of the disease.

Since movement can push aside this edema, we naturally are able to remove it with massage. And, as a matter of fact, we find that massage is extremely beneficial whenever swelling is present. Needless to say, I do not recommend the massage of an inflammatory edema, such as we find in erysipelas or in the neighborhood of an abscess. We should always remember, acutely inflamed conditions, whether they be in the joint, in a bursa, or in a tendon, are not suited for massage.

But even here there is an important exception. The acute gout attack, with its inflammatory edema, lends itself extremely well to gentle massage, and the patient is greatly relieved and benefited by it.

Looking back over a great number of cases, I find that massage has proven of value only in those cases where an edema, a stasis or an extravasation was present. After the previous explanations, this is not surprising.

Massage removes the edema, facilitates emptying the veins and lymph vessels, and reduces the tension in the tissues; the capillaries open up and arterial circulation is restored. If there is no swelling, there is no sense in massaging. Unfortunately, this is nowhere clearly expressed. On the contrary, we find in every book on surgery and orthopedics advocating that massage is a valuable method for stimulating weak muscles, for instance in poliomyelitis. These are usually young individuals with excellent circulation. They need exercise and not massage. Exercises are the methods with which to strengthen the muscles, not passive manipulation.

Now, of course, somebody might object and say: "Well, there is certainly no harm in massaging a weakened quadriceps." The attitude is debatable because valuable time is lost. If a case with infantile paralysis gets twenty minutes elec-

trical stimulation and twenty minutes massage, then very little time remains for the exercises; and instead of half an hour to an hour's exercise, a few hurriedly executed bending and stretching exercises are performed and the patient is discharged. Similarly, I regard massage in the average case of Bell's palsy as absolutely valueless. Minute and painstaking re-educational exercises are called for, preferably under the guidance of a mirror.

In cases of scoliosis, we are dealing with a more complex problem. If the patient has pains and these pains are of the type that the first few movements hurt and which, after limbering up they subside, massage is indicated. In other words, if the patient has pains which indicate that he is tired, he needs rest and massage; but, if a patient is merely weak, as we must assume that the muscles in scoliosis are, exercises should be introduced. We come, therefore, to the very simple and fundamental conclusion: if we want to build up a patient's muscles, we must first ascertain if he is tired or if he is rested but weak. If he is tired, he must have rest and massage. If he is rested but weak, exercises should be used to build up the muscles. This applies not only to scoliosis but also most essentially to fallen arches and similar conditions. According to this rule, we should prescribe arch supports (that is rest) and massage to painful feet, and strengthening exercises to a patient who has no pains but whose arches are weak.

Normally, during exercise an adequate supply of oxygen is present so that the muscle can oxidize the lactic acid almost as quickly as it is formed. Only during prolonged exertion may the supply of oxygen sometimes become inadequate and induce fatigue. In individuals with normal circulation, massage should therefore only be given after strenuous exercise as otherwise no lactic acid is accumulated. Contrary to what I mentioned before in the case of poliomyelitis, if massage is used at all it should be used in these cases after (prolonged) exercises.

In conclusion I wish to emphasize, first, the chief value of massage is to empty the muscles and tissues of superfluous fluid, corpuscular elements and products of fatigue, such as lactic acid and other bi-products; in other words, if there is nothing to remove there is no use to massage; and, second, in building up muscles, massage does not act as a form of stimulation, but takes the place of rest and should be used whenever a muscle is tired, while in weakened conditions, properly selected exercises should be chosen.

Dr. K. G. Hansson (New York City): It is indeed a rare occasion to welcome anyone who speaks on massage. Seldom does the subject of massage or of exercise come up before medical societies. This fault is not confined to New York City. I had the same experience two years ago in Chicago. At a national physical therapy convention, which met every day for a week, one paper every hour, only two referred to exercises and one to massage.

It has been a special pleasure to listen to Dr. Pemberton. It is significant that the Society had

to go out of New York City to get someone to speak on massage. I don't know of anybody better qualified to speak on this subject than Dr. Pemberton.

Dr. Pemberton spoke about heat. I had an experience today, discussing a new apparatus which is said to be able to give 300 degrees F. to the human body. It is said to be a different type of heat. If we remember that the physics and physiology of heat remains the same we can save ourselves from new and extravagant heat machines. I was very much pleased to hear Dr. Pemberton emphasize the capillary circulation. I do not think anyone has done more outstanding work along this line than Dr. Krogh of Copenhagen, whose writings are now considered classical. It is in the capillary bed where the solution of the physiological action of massage is found. I do not believe that the whole physiology of the capillaries is understood as yet. We have only to remind ourselves of the experience of getting the feet wet and thereby getting a cold in the head to appreciate the importance of capillary function.

I would like to ask Dr. Pemberton how he explains that the volume of the urine is increased after massage.

Dr. Pemberton has also shown some beautiful slides where the red corpuscles have increased after massage. I suppose it is only a temporary increase and only due to the increase in the volume in the capillaries in the normal and the arthritic person.

I should like to bring up for discussion the question whether or not massage should be used in acute infectious arthritis. Some authorities advise massage in any kind of arthritis. I believe from my own experience it is more advisable in chronic and sub-acute cases.

I do not think Dr. Pemberton stressed the dangers of massage. I should like to tell about an experience of one of our colleagues. He had his tonsils removed and subsequently had a hemorrhage which left him very weak. He went to his medical advisor and was referred by him to some ex-prize fighter, who massaged him for one hour. That doctor had to go to bed for six weeks and it took him six months to get well.

Another experience. Last summer I was asked to visit a man who had a temperature of 102 degrees F., apparently for no accountable reason. This developed subsequent to a dislocated semilunar cartilage for which he had called in a technician who had massaged his lower extremity. When I examined him later he had small pimples all over his leg. That was due to using vaseline or massage on a hairy leg, and the eruptions of the hair follicles were enough to give him a temperature.

I want to emphasize the importance of the general type of massage. I am convinced that most of the benefit of massage is in the influence upon the capillaries. Therefore, it is very seldom that any deep massage is necessary. Where we get into trouble with massage is when too prolonged, or too heavy or too deep massage is given. This is especially important in handling

paralysis, particularly infantile paralysis and especially in the winter time.

In giving massage, certain rules should be observed, such as having the patient completely relaxed and completely supported. Complete relaxation must be developed in the wrist and in the fingers of the technician, and proper lubricant must be used or none at all.

In relation to the difference between massage and other physical therapy modalities; I made some experiments a few years ago to find out the comparative effect on the circulation. I took 1/10 cc. normal saline and injected it sub-cutaneously, forming a white round spot in the skin. Such an injection is normally absorbed in 60 minutes. I then exposed such injections to various physical therapy modalities and I found that massage was most effective and absorbed the injection of saline in seven minutes.

I want to say in conclusion that one of the text books on physical therapy which has been very popular stated, that, if the author of the book were left to choose only one modality to work with he would prefer the static machine. If I were in the same difficulty I would choose massage. I want to thank Dr. Pemberton for his scientific approach to the subject of massage and I hope that other physical therapy modalities may be investigated in a similar fashion for our future use.

Dr. Harry Eaton Stewart (New Haven, Conn.): Massage may be given primarily to stimulate or to soothe. In speaking of massage, therefore, we should more clearly define the kind of massage indicated — effleurage, petrissage, tapotement or friction. We seldom order "massage" in a treatment prescription but give the particular movements desired.

I was very much impressed with the results of the studies by Dr. Pemberton. It seems to me that perhaps we have been on the right track in depending on diathermy for increasing capillary circulation, and on massage only for finishing up the treatment. I feel, however, that massage, for many indications, cannot approach in importance the static Morton wave or some other electrical measures. However, anything worth doing at all is worth doing well, and massage has its place and should be used where indicated.

In spreading a knowledge of physical therapy to the group of physicians in our Seminar I feel that we owe a great deal to Dr. Pemberton for the way he has presented his subject to us tonight.

Dr. William Bierman (New York City): It might interest Dr. Pemberton to realize that, without patting ourselves on the back, we think we have the most active physical therapy group in this section of the country. We feel we have been active and our Seminar is, I think, definite testimony to that belief.

We are very anxious to stress the points Dr. Pemberton has made and we particularly desire to get away from the purely empirical arguments heretofore launched in physical therapy. At the Beth-Israel hospitals where we are using the vari-

ous modalities we are trying to make our claims in conservative and scientific fashion.

There was one statement made by one of the discussers to the effect that we had to go out of town, out of New York City, to get someone to talk on massage. While it is true that we were very fortunate in being able to secure Dr. Pemberton for this lecture, I want to explain that in arranging for this seminar we followed the policy of not having anyone of the members in this Society as a lecturer. We wanted to impress upon the profession as a whole that we were not trying to grind any of our own axes. It was primarily to get away from that accusation that we went out of town, out of our own circle to get lecturers for this course, and is not to be construed as a reflection on the members of our Society.

There are many things which may be said about massage. In the announcement of our Seminar may be found a group of hospitals where more information concerning technic will be given in clinical demonstrations.

Students at schools of massage are required to spend two or three years in study before they are considered sufficiently cognizant of the principles of massage. Those of you who so desire may secure definite knowledge of technic at the various hospitals. I am requested to announce that Dr. Bilik is in charge of the activities in physical therapy at Bellevue Hospital from nine to twelve every morning except Sunday.

Dr. Norman E. Titus (New York City): I want to thank Dr. Pemberton for bringing to our attention the great uses of massage from a viewpoint not very often thought of. He has stressed particularly the use of massage for stimulation of circulation.

When I first started using physical therapy I had very little respect for massage. Later I was electrified to find that massage is one of the most useful things in physical therapy, although I cannot agree with Dr. Pemberton that it is as necessary or as indispensable as some of the electric modalities.

Dr. Pemberton uses massage mainly for stimulation of circulation. Dr. Baruch taught us that hydrotherapy will accomplish stimulation of circulation, as will also radiant light and hot air baths. We utilize massage more for mechanical removal of exudates. We can also remove them with electricity and with hydrotherapy. Whirlpool baths will do a great deal to stimulate and remove exudates.

Dr. Pemberton said that the orthopedists and neurologists probably know more about massage than anyone else. I grant that, insofar as they admit it. However, they really know less physical therapy than any men in medicine who are at all interested in physical therapy.

Surgeons know more physical therapy than anyone else. They have come to learn the use of ultraviolet light, diathermy, electricity, gymnastic exercises, hydrotherapy, and so forth. Surgeons today in New York know more physical therapy than all the neurologists and orthopedists put together.

Dr. Pemberton spoke about myositis. It is very common, as you know, in clinical practice. I cannot agree, in regard to treatment, that massage can begin to compare with heat and electricity, for the patient responds more readily to the latter treatment.

Dr. Heinrich Wolf (New York City): If we have an injury to the tissue we can do a great deal to help in its healing and not leave it entirely to the healing power of nature.

A very important point brought out in tonight's lecture is that we can make better progress when we can show that physical therapy has a scientific approach. As long as physical therapy was merely an empirical argument, we could not hope to impress a scientific member of the medical profession. If we will stick to developing physical therapy on a strictly scientific basis so that we can convince the profession at large that it has a scientific background, then we will be able to obtain a wider recognition for physical therapy. I am convinced that our therapeutic methods stand on a much sounder physiological basis than any other work.

Dr. Ralph Pemberton (Philadelphia, Pa.), closing discussion: I have very little to add. I was much interested in the discussions and I am glad, indeed, to see such a lively interest on the part of all of the members.

I ought to say that I am not here as a proponent of anything. I am not attacking any phase of treatment. I was trained primarily in internal medicine and tonight am really out of my bailiwick.

I do not differ with the views of others here tonight. It is difficult to see how they could differ with me. I appreciate the value of various electrical modalities but I want to see those results interpreted in precise figures. That is what you need. You will not be able to convince the medical profession of their value until precise data are obtained.

I think Dr. Wolf's suggestion as to a scientific approach is quite germane.

I do not want to be interpreted as saying that massage only will stimulate the circulation. Massage is something whose influence can be explained by its effect on the circulation — partly explained but not wholly. Massage is not the only method of stimulating circulation.

Massage does not develop lactic acid. It is its failure to develop lactic acid which partly distinguishes massage from exercise.

Under exposure to heat, a great deal of acid is eliminated. The alkali remains about the same until a relative excess develops when it in turn, is eliminated.

In regard to the question as to the increase in urine, I do not know just why this should be. It may be a reflex matter, or it may be due to increased abdominal pressure.

As to the red cells. The immediate increase in red cells is due to the influence on the capillary system which restores inactive red cells to the circulation and so increases the hemoglobin.

As to atrophic arthritis. When the case is acute, one must not add trauma to the condition

already existing. I do not think you need details as to this and furthermore there is not time.

There is a wide variation in the kinds of massage. As to indications as to what patients need massage, the medical profession will have to inform itself. You medical men know. When it comes to telling the technician how to carry out our instructions, here again the general profession will have to inform itself. When we need a prescription, we do not turn the matter wholly over to the druggist, but we tell him exactly what we want. Many physicians would not hesitate to turn a patient for massage entirely over to the masseur, but I feel that we should tell the technician exactly what movements we want followed. Fortunately, the masseur is usually very well trained. While we may need more well trained technicians, at the same time we want to assure ourselves that the profession knows how, when and what to prescribe in massage.

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THE RELATION OF LIGHT TO HEALTH AND DISEASE *

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In the brief time that I have at my disposal, I cannot enter deeply into the physics of light, but some of the physical characteristics of artificial light sources must be briefly stated so that the practitioner employing these light sources may the more intelligently use them for treatment purposes.

The practitioner should like to know: What are the spectral components of light sources? What is the technic to employ? What is the dosage? Is over-dosage dangerous? What is the physiological action? Can light applied to superficial skin surfaces affect the depths directly or indirectly? And, lastly, what are the clinical indications for light therapy?

We first became interested in light about fifteen years ago after noting empirically that the artificial source—the quartz mercury arc—favorably influenced a rather serious complication of pulmonary tuberculosis, namely, secondary ulcerative intestinal tuberculosis. We, in Saranac Lake, at first were most skeptical about our clinical observations. Our results since then have been such as to leave us not only with favorable impressions, but to carry the strength of conviction.

Sunlight, passing through a quartz prism, breaks up into a visible spectrum extending from the red to the violet, bounded on either side by invisible rays—on one side the infrared, and on the other the ultraviolet. Infrared rays extend from 760 *mu* to about 5 *u* in sunlight after it has passed through the atmosphere. Longer infrared rays, namely, those from 5 *u* to 15 *u*, predominate in artificial light sources, such as carbon arcs, radiant heaters and incandescent lights. Sunlight loses those above 5 *u* by passing through atmosphere. The mercury arc has some of the longer infrared rays coming from the heated electrodes, quartz burner and the reflector. The longer infrared above

1.4 *u* are stopped by water vapor and water. Those up to 1.4 *u* penetrate about 25 millimeters. The long heat rays absorb rapidly in the skin, stimulate the nerve-endings in their rapid absorption and may so set up physiological action. They produce an immediate redness which rapidly disappears.

As to the *visible* rays, the red portion of the spectrum penetrates deeply and provokes a temperature elevation of 3° C. in the tissues beneath the skin without raising body fever. They set up redness due to heat which can be prevented by irrigating with cold water. They can set up chemical changes in tissues if the tissues are first sensitized with eosin or hemato-porphyrin. These visible rays affect vision.

The *ultraviolets* are the most important rays. They are invisible, chemically acting because of their rapid absorption, and can set up marked reactions. In sunlight, the lower limit is 290 *mu*, but this lowest limit is exceptionally weak. At sea level, in winter, 305 *mu* is the low limit, and in summer about 295. The most important range of the solar ultraviolet rays are those between 310 and 290 *mu*.

In the sphere of artificial light sources, such as the carbon arc or quartz mercury arc, the low limit is between 220 and 200 *mu*, lower in the quartz mercury arc than in the unimpregnated carbon.

In sunlight those between 310 and 290 *mu* are 3 per cent of total light emission and emit in total about .03 gram calory per square centimeter per minute, so that the total output of sunlight energy is 1 gram calory per square centimeter per minute. For therapeutic effect in rickets all one requires in this region is one-third of the solar ultraviolet rays of that area.

The ultraviolet rays above 320 *mu* pass through window glass; those below do not. Those above 320 *mu* do not set up a redness and are not important physiologically except that it has been shown that with very long exposures those at 365 can kill bacteria.

* Read at the New York Physical Therapy Society Seminar, February 4, 1931.

Those from 310 to 290 *mu* are strongly preventative and curative of rickets, favorably effect anemias, set up most of the erythema, and are bactericidal. Slight erythema is produced at 260 to 250 *mu*. (Hausser and Valle.)

The shorter the ultraviolet rays, the more rapid is the bactericidal action because there is selective affinity. Rays at 265 *mu* are intensely destructive of bacteria (colon, staphylococcus, etc.); those at 253 *mu* are likewise strongly bactericidal.

Tanning is especially produced by those rays from 320 to 290 *mu*.

As to penetration through glass, vita-glass transmits about 60 per cent around 320 *mu*, 30 per cent at 290 *mu*, and 20 per cent at 280 *mu*.

Sixty-nine per cent of the erythema-producing rays are between 302 and 297 *mu*.

Almost any impurity of the air will stop the penetration of the ultraviolet rays. They have practically no penetration through skin tissue, but if the skin is rendered bloodless, the penetration becomes much greater. Blood and serum absorb the ultraviolet rays easily.

At an elevation of 7,000 feet the total energy output of ultraviolet is much increased.

Ultraviolet sets up increased permeability of capillaries and cells, activates the pro-vitamin substance, ergosterol and forms Vitamin D, stimulates white blood cells, and increases blood platelets if they are low before the application of light. The redness produced by them has been claimed by English workers to increase the ability of the blood-stream to destroy bacteria, such as the staphylococcus, the pneumococcus, and the streptococcus; but these claims have not as yet been fully substantiated. Many particularly stress erythema as important for physiological effect, and they employ it as a guide against over-dosage. Other workers, however, have aimed at pigment production.

Under ultraviolet irradiation, calcium and phosphorus are definitely increased in rickets and tetany. The basal metabolism is not influenced by light, but the mineral metabolism has been shown to be increased. Moving air, also, has been shown to raise the total metabolism.

Carbon-arc lights of low amperage, that is, those from 3 to 10 amperes, even with specially impregnated carbons, give off little

ultraviolet of the erythema-producing region. Those of 20 amperes or more give off a considerable percentage of ultraviolet in this region. Carbons with special cores of iron, nickel, tungsten, copper, and aluminum give off a goodly percentage of ultraviolet rays if the amperage of the arc is above 20. The quartz mercury arc gives off bands of intense ultraviolet, but in the background there is also in this region a continuous spectrum which is somewhat fainter. Twenty ampere carbon arcs are used for single patients and are more valuable at closer irradiation when employed with aluminum reflectors and with impregnated carbons. Higher amperage arcs, such as 55 amperes, used at the Finsen Institute, or the four-arc machine of 95 amperes can irradiate many patients at one time.

Factors in Choice of Light Radiation

The choice of a suitable source of light depends upon many factors, such as the indication, the availability of the source, the convenience and cost of operation, and the initial cost of the lamps.

The exact indications for different sources are not yet worked out. Fortunately, over-dosage with light, so far, does not seem to be dangerous except in extreme instances. Over-dosage has been reported to depress the bactericidal power of the blood-stream and to produce focal reactions in tuberculosis and to lower resistance to disease, especially in older people. The question of proper dosage is a matter of watching constitutional and focal reactions, and feeling one's way; also watching for proper skin reactions.

Clinically, ultraviolet irradiation has been very valuable in rickets and tetany and osteomalacia. Nursing mothers have been irradiated to render their milk antirachitic, as well as to prevent their demineralization.

In tuberculosis, both carbon arcs and mercury quartz lights have been very valuable in many of the complications of pulmonary tuberculosis. We, in Saranac, have been particularly impressed with the use of the quartz mercury arc in intestinal, peritoneal, lymphatic and superficial forms of tuberculosis, such as ulcers of the mouth, pharynx, larynx and corneal eye ulcers. Bone and joint and genito-urinary tuberculosis respond less rapidly. Sinuses are more

resistant, except those following nephrectomy and epididymectomy.

Limitations of Light in Tuberculosis

Light therapy in tuberculosis is only an aid, but at times it can prove to be a very important one. The mainstays in the treatment of tuberculosis—rest, outdoor life, and hygienic and dietetic regimen—still remain unaltered.

In bone and joint tuberculosis, orthopedic measures are most essential, such as mobilization and traction. Light treatment in pulmonary tuberculosis, in our experience, has rarely proved a valuable aid (and then only in the productive forms) and is not to be relied upon in the cure of this disease. Surgery is at times indicated in bone and joint, lymphatic and peritoneal tuberculosis, especially in the latter if caseation is present. In our hands, artificial light therapy has proven most valuable in a secondary ulcerative intestinal tuberculosis, and has for the most part superseded surgical intervention. Filling defects seen by x-ray in the colon in cases of pulmonary tuberculosis and so diagnosed as intestinal tuberculosis, have disappeared completely in large series of cases under the mercury arc light therapy. Pathological studies of autopsy material have further substantiated our clinical impressions. These studies have shown definitely healed ulcerative intestinal tuberculosis.

Although light has proven to be an immediate aid in many of the complications mentioned, yet, when relied upon solely as the means of recovery, and when rest and the other classical measures have been discarded, cases that promised recovery have terminated fatally.

In application, we have always employed general body exposures, in addition to local exposures, wherever possible. We have aimed either for erythema or pigmentation, but recoveries have occurred when neither was evident.

The value of sunlight in the complications of pulmonary tuberculosis is no longer questioned. Its use is well known to us and therefore has not been particularly referred to in the foregoing discussion.

Discussion

Dr. Alfred F. Hess (New York City): Dr. Mayer has given such a comprehensive review of this subject that it is very difficult to know where to begin.

It is only about twenty years, perhaps not more than ten or twelve years, that light therapy has been accepted by the medical profession. We must not blame the medical profession for this, for there was so much claimed in many ways by those who sponsored light therapy that it was very hard to determine what there was of value in their claims. It is interesting to remember that what has really established light therapy is the fact that it was possible to show that light could definitely accomplish something and to demonstrate this not only in a subjective way but objectively, by means of the Roentgen rays. In other words, rickets could be cured by these rays. It serves as an instance of what can be accomplished if we can prove that something undoubtedly is effected by an agent. Take, for example, the question of smoke abuse. One of the reasons why we cannot get legislation in connection with this smoke nuisance is that we cannot convince the legislature that smoke is harmful. If we could convince them that the smoke nuisance leads to an increased morbidity and mortality I think we would get legislation in a short time.

Ultraviolet radiation as a cure for rickets is well known. When inorganic phosphorus is low in rickets it raises it to normal and when calcium is low it raises that to normal. It is supposed to act on calcium metabolism in connection with the parathyroid glands, but how, nobody knows. It is evident, however, that there is some connection.

Now, when we get beyond rickets and consider what ultraviolet rays can accomplish in other fields we tread on rather shaky ground.

We tried an experiment in a hospital ward to see whether ultraviolet was effective in preventing colds. We irradiated one-half of the number of children in the ward, twelve of them, whereas the other twelve were not irradiated. These first twelve were irradiated three times a week. All of the children were in the same ward, had the identical care, similar food, lived under exceptionally well controlled conditions, and we found that just as many colds developed and were no less severe in intensity in the one group as in the other. The hemoglobin went up at first, perhaps for six weeks, then remained stationary for twelve weeks. The experiments were begun in November and in April.

The next year we used the carbon arc light, a fairly large lamp, by which three or four children could be irradiated at one time. Again no difference was noted. We had the same number of colds, the same number of ear complications. From these investigations we feel that colds, our greatest problem, cannot be obviated by this means. In our child-caring institutions we have advanced so far that we now have no more summer complaint, in the summer the internes have little to do; but in the winter, everybody is busy, for then we have colds and cases of pneumonia. I cannot say that I feel at all assured that we can accomplish much in these cases with ultraviolet.

I do believe there is a certain connection between infections and the lack of vitamins, which is another but a closely allied subject. This I noted about 1914 in the following way. I was then particularly interested in the hemorrhagic diseases and noted in a

ward some children covered with minute purpuric spots. I could not quite make out the cause of these hemorrhages. About a year later I began to appreciate that we had been dealing with latent scurvy in an epidemic form. The infection had come into the ward and precipitated the scurvy. In this way it was shown that there is a definite relationship between the lack of a vitamin and the development of an infection.

Ultraviolet rays are not synonymous with sunlight. The ultraviolet rays constitute but a fraction of one per cent of sunlight and it is clear that these invisible rays cannot comprise all the solar radiations of benefit to man. The visible rays probably have a definite effect, as well perhaps the infrared.

Now whether the next advance in the use of ultraviolet rays will be made clinically or in the laboratory, no one can say. It should be remembered that the advance in rickets was made in the clinic and not developed in the laboratory, except subsequently. I think Dr. Mayer is emphasizing the question just where it can best be investigated, namely, in the treatment of peritoneal and intestinal tuberculosis. There is no doubt that these patients are benefited by sunlight and by radiation.

I should like to ask Dr. Mayer whether he has had any experience with irradiated ergosterol in tuberculosis, especially pulmonary tuberculosis.

J. W. Marden, Ph.D., (New York City): It is very difficult for a man who works in the laboratory and attempts to produce ultraviolet ray devices to come and try to talk to such experts as we have heard tonight.

There are a few things I might say. In our laboratories, speaking in a general way for the scientific laboratories, which are those interested in light and light development, we are working very hard at the present time to develop new sources of radiation, new sources of ultraviolet and the various other parts of the spectrum. We are trying to produce lamps which will be particularly useful at wave lengths of 250 millimicrons; also longer wave lengths, 300 and 330, as suggested by Dr. Phelps, who feels that the so-called vital radiation of ultraviolet, that is 297 millimicrons, is not necessarily the proper radiation to treat tuberculosis. Some other wave length may be more effective. Our commercial institutions are most anxious to work with the physician to produce devices which he can use in his treatments; to help him in every way we can in the laboratory. We are most happy to work with you and to co-operate in every possible fashion.

A word about the commercial institutions. They are more or less conscientious about the products they put out on the market. They will make only such apparatus as will benefit the people as a whole. They are not willing to go out and market anything which is harmful to the people. We are looking to you, gentlemen, in this Society to help us to put out the most helpful products. If these ultraviolet ray lamps which are now being so extensively used are found to have but little benefit, we are not interested in producing them or selling them.

I would like to ask Dr. Mayer a question. Is there any indication that systematic radiation by

ultraviolet is of general value to the average individual? We have heard a great deal to the effect that general irradiation say once a week, or once every few days is of value to the average normal individual.

Wm. T. Anderson, Jr., Ph.D., (Newark, N. J.): I have had the good fortune to be associated with Dr. Hess in many of his investigations with light and I have also been privileged to follow Dr. Mayer in his work.

Dr. Mayer has mentioned a number of factors and conditions to which I wish to refer. He has stated that at Rollier's Institute there are only 35 really sunny days per year and only about 75 days on which the sun appears. The question has been raised as to what, if not sunlight, is responsible for the good heliotherapy results obtained at that Institute? I have measured the ultraviolet of sunlight at Newark from time to time. Newark is not favorably located for measurements of this kind because of the huge quantity of dust, soot, and fumes in the air. These tend to screen out the ultraviolet of sunlight and to give very variable results. In spite of this condition, I think that I may say that on cloudy days there is received from twenty to twenty-five per cent of the total ultraviolet received on corresponding sunny days. It is possible that Rollier is exposing his patients to skyshine, and that in the aggregate this is sufficient to accomplish the results obtained. Thus, even on cloudy days, he might conceivably be obtaining his excellent results by virtue of the ultraviolet.

With reference to the action of light on protoplasm, and in particular, the bactericidal action of ultraviolet light, attention may be directed to the recent work of Dr. Weinstein of Columbia University. He did his experimentation largely in our laboratory and I had the pleasure to assist him in many of his determinations. His subjects were paramecia, and monochromatic light was employed. He found that the quantity of ultraviolet energy required for killing was dependent upon the absorption of the protoplasm for that wavelength and for any given wavelength was constant. This latter means that, within the range of intensities employed in his experiments, the intensity of the radiation multiplied by the time for lethal action was constant.

Pernicious anemia is a condition which appears to be alleviated by the employment of light radiations. I have had the opportunity of assisting Dr. Macht of Johns Hopkins in some studies on this subject. We conducted our experiments on pernicious anemia subjects in various parts of the country, notably in Baltimore and Clifton Springs, N. Y. In all we had about 16 cases for observation. The toxicity of the blood was shown by a phytopharmacological method employing seedlings of *Lupinus albus*. Irradiation of the patients by arc lamps and quartz lamps resulted in improvement clinically and could be followed in the laboratory by the above test. By the irradiation of samples of the toxic blood serum by monochromatic light, we established that the longer ultraviolet, which is not effective in rickets, was primarily responsible for the action. Even visible light was effective when the patients were given eosin by

mouth or intravenously, and at the same time the action of the longer ultraviolet was enhanced.

I agree thoroughly with what Dr. Mayer has said regarding the confusion existing in the literature and in research. Time will correct this condition.

Dr. E. E. Free (New York City): After the scholarly reviews of the subject that you have heard from Dr. Mayer I am sure that everyone will agree that one of the chief features of the ultraviolet situation at the present time is its uncertainty.

One phase particularly appeals to me and that is the uncertainty of measurement in the vast number of clinical and other experiments. The measurement of ultraviolet irradiation is difficult and has serious pitfalls. This should be more widely recognized and more definite attention given to precise measurement of the intensities and wavelengths used. If that is done, much of the uncertainty in literature will be eliminated.

It would be presumptuous for me, as a physicist, to make any biological comment. One cannot, however, work with the physics and chemistry in this field without reaching some idea as to what is going on in the living organism. My associates and myself have reached this series of ideas which probably are quite foolish but may be of transient interest. There have been a great many chemical experiments with ultraviolet radiation for things like the hardening of leather, the treatment of bread to make it rise more quickly, and so on, and it has been found that virtually all of these chemical effects are due to one thing, the activation of the oxygen atom. In the treatment of patent leather with ultraviolet radiation the desired change is brought about by the creation of active oxygen by the ultraviolet. Now as to the biological suggestion, is it not possible that many of the biological effects of ultraviolet radiation, especially the lethal effects, are due to the production of active oxygen in the structure of the organism and consequently to the violent disturbance of the oxidation-reduction conditions in cells or organisms so activated? Perhaps this is a field which biologists might consider.

Dr. Herman Goodman (New York City): The confusion which apparently exists in the stories presented as to the value of ultraviolet would be cleared if we could but realize that we have two distinct features to study. The first of these has to do with the measurable specific effect of definite wavelengths. The second considers the general clinical evidence of exposure to many wavelengths including ultraviolet.

The measurable specific effects of definite wavelengths remains a study for the laboratory and for the few clinicians who have been fortunate enough to have associated themselves with the physicists who have the laboratory apparatus available. It is idle to repeat the few results obtained. In my own field the importance has been erythema production; in Dr. Hess' work the objective was ricket prevention or activation of otherwise inactive substances. Some day, monochromatic sources of energy of sufficient intensity for general clinical use will make it possible for any clinician to repeat specific wavelength experiments.

In the discussion this evening, little has been said

of this branch of ultraviolet therapy. Certainly, the treatment with available clinical sources of ultraviolet as the mercury vapor arc in quartz (Alpine) or the emanation of carbon shell impregnation of prescription carbons cannot be offered.

Yet, these clinical sources of ultraviolet have been used by Dr. Mayer and others. Results have been obtained which warrant the continued use of such apparatus in many conditions of illness or breakdown of the human machine. Persons with tuberculosis of the non-pulmonary organs and tissues do thrive during the period of ultraviolet radiation plus anti-tuberculosis regimen. In my own hands, tuberculosis of the skin has shown marked improvement with general tonic care and hygiene, plus local and universal radiation of the patient with ultraviolet from the mercury vapor arc in quartz air-cooled (Alpine) lamp.

But, there is evidence that tuberculosis of non-pulmonary organs and tissues responds to other forms of treatment; and indeed to ultraviolet treatment of very different quality. Mention has been made of the excellent results reported some years ago by Sir Henry Gauvain with sunlight which we know to be very poor in those regions of ultraviolet thought most helpful in the work of Rollier, for example.

We must admit then that the results obtained in the treatment of non-pulmonary tuberculosis depends upon some other factor than the measurable, repeatable, specific wavelength idea mentioned as possibility number one.

I could continue naming the conditions for which this general idea of ultraviolet helpfulness has been advanced, as the abatement of colds. One school reports favorable results; another group of equally honest investigators finds no differences between radiated and non-radiated children insofar as colds are concerned. Or still further evidence of the generality of the cold matter; one source of ultraviolet clinical available is claimed to be better than another source by one; and another physician reports failures using either source.

The conclusion one must reach, in my own opinion, is that the work on cold prevention has not been proven to belong to the specifics. I would add that the work on antiseptic or bactericidal value of clinical sources belongs to the non-specifics; particularly if the bacteria are on the skin. My own work has been definite in this regard although very limited. It was not possible to inhibit the growth of a viable culture of *staphylococcus aureas* using a mercury vapor arc in quartz, clinical air-cooled model, on exposures of time and distance safe to use on the human skin.

One must give evidence, however, that properly administered to the skin of a patient with impetigo contagiosa—an infection of the skin with strepto- and staphylococci-clinical radiation with ultraviolet sources does relieve, and indeed cure. When I say, properly administered, I am referring to the factors of removing the crusts so that the underlying skin be exposed.

It is very possible that the direct action of the ultraviolet is not essential. The ultraviolet for fixing calcium in bones does not reach the bones, for

example. It would be possible to have some intermediate product formed by the action of biologic ultraviolet on the skin, and for that intermediate product to be the active therapeutic agent. On this assumption, one should theoretically, at least, be able to radiate the skin of the middle of the back, and to have impetigo contagiosa of the face become clinically cured.

I hope that this discussion indicates that I am still seeking some explanation which will cover all the reactions of ultraviolet in human biology and pathology. In fact, the question may well be raised: Have we any explanation?

This in no way invalidates the results which are daily being accomplished by radiation with ultraviolet sources. Ultraviolet as available to the physician is an added tool. It has proven its worth, and the empiric clinical results have initiated physical, and physical chemical studies substantiating those results in a few instances. May these few multiply.

Dr. William Bierman (New York City): There is one other phenomenon when ultraviolet is applied to the skin. One of the men at the Beth Israel Hospital made this observation, that in treating a case of universal psoriasis he secured great benefit by putting the patient in a light cabinet bath. He concluded that measures which influence the circulation of the skin act in similar fashion. Plain visible radiation causes a change in the reaction of the skin. Ordinary sweat is acid. The reaction of the blood is slightly alkaline. Whether we treat by radiant light and heat or by chemical agencies, we must not overlook the physical reaction on the living body.

Dr. Maughan, who has been doing cold prevention work with Dr. Dean Smiley states that they are getting results better than 40 per cent reduction of incidence of colds. They are also using procedures other than ultraviolet radiation.

CONSIDERATION OF SOME PROBLEMS IN ELECTROCOAGULATION OF TONSILS *

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The first consideration is naturally that of diagnosis. In other words, does this pair of tonsils need to be removed, and if so, why? As the factors involved in this question are materially different or have a different bearing, as between childhood and adult life, it would seem best to consider these age periods separately, with the time-line of demarcation at ten to twelve years of age. For practical purposes in this field the adolescent may be classified with the adult.

As perhaps ninety-five per cent of our cases are of the latter classes and, from a pathological standpoint, the most important, we shall give these our first consideration. After the usual preliminary questions, as to name, age, residence and occupation, the history of local symptoms is obtained. Has the patient had tonsilitis? If so, when, and how many times? Has he had quinsy? Does he take cold easily, or have sore throat other than as above? Any kind of foul secretion from the tonsils? Does he complain of trouble in adjacent organs as ears, sinuses, nose or larynx? While out of the realm of laryngology, it is

best to inquire into the state of the teeth, for that may have a practical bearing on the case, particularly as to general symptoms.

General symptoms from focal infection may be any one or more of a legion, usually several in a given case. Upon questioning, generally, some of the following are, or have been, present:—rheumatism of muscle or joint; neuritis or neuralgia, stomach trouble, poor appetite, insomnia, headache, nervousness, lack of "pep," etc. A careful inspection of the throat should then be made, including tongue, pharynx, naso-pharynx, and frequently the nose, ears, and larynx. A careful examination of the tonsils, noting size, color, shape, location, relationships and adhesions. Retract anterior pillar, with further observation. Press retractor against base of tonsil, with backward and outward, then inward, pressure with a massaging movement, and note exudation from crypts, if any, and character of same. Is there foul odor?

Now the first problem, that of diagnosis, should have been practically solved, and advice as to removal or not should immediately follow. If the tonsils are condemned, the next problem as to method of removal is for con-

* Read at the Tenth Annual Meeting of the American Congress of Physical Therapy, Omaha, Nebraska, Oct. 5, 1931.

sideration. While a few are using x-ray, or perhaps, radium, it is practically a question between surgery, as one ordinarily uses that term, and electrocoagulation. Those who are accustomed to do tonsillectomy by dissection, dissection and snare, suction and snare, a Sluder, or a La Force, will probably, for the present, continue to do more or less of these operations. If the operator is one of those to whom the word "electrocoagulation" is "anathema" he will operate in all cases where he dare. The remainder must struggle along as best they may, or submit to various inadequate treatments. The more liberal surgeon will concede that in some cases at least, electrocoagulation is indicated, and if he takes this up conscientiously himself, we opine that, with increasing experience, he will use it more and more, until finally it may become with him, the method of choice, the safety factor being paramount.

The title of this paper would preclude a discussion of the various methods of surgical tonsillectomy, so that the problem next presenting is that of coagulation technique. We began, nearly ten years ago, with desiccation, using the mono-terminal or Oudin current, both by direct and indirect application, by spark and by contact, by curved needle and by vacuum-tube with metallic point. We did not find these methods satisfactory, perhaps because we did not persist in them sufficiently long. Some seven or eight years ago we began the use of biterminal methods, following Plank in making the autocondensation handle the indifferent electrode, or in some cases the block-tin plate to the back. Later, we used a technique employed at that time by Waddington, but we understand, since changed. This consisted in making the autocondensation pad or chair the indifferent terminal. This method was effectual and convenient, and we used it largely until our own method and instrumentation was developed. This is a localized biterminal technique, with both active and inactive electrodes in the throat, the latter acting as a pillar retractor. In some cases a ring terminal placed around the tonsil is more suitable. In either case, these instruments subserve a double purpose and function, viz:—that of pillar retractor and indifferent electrode. Briefly considering the relative merits or demerits of these various techniques, we submit the following, as to desiccation:—The effect of the monoterminal current is

more superficial than the biterminal, less easily controlled, requiring a heavier insulation, and, although slightly less painful with moderate current, it will require a greater number of applications, or more sittings to obtain the same result. In case of curettage immediately after each layer of tonsillar tissue is desiccated, until the whole tonsil is still held true, for the current is actually removed at one sitting, the above statement on a much longer time than would be necessary with the d'Arsonval current to accomplish the same result. With the autocondensation handle in the hands, or a plate strapped to the wrist as recently advocated in the English press, a high degree of resistance, with considerable variations, is introduced into the circuit. We believe a metal plate, with or without a moist covering, placed between the shoulders, to be preferable, as it offers less and a more stable and evenly distributed resistance, than the above. The autocondensation chair or pad as the indifferent electrode is more convenient, and seemingly as effective, but one must use a non-conducting tongue-depressor and pillar retractor, and be careful not to touch the lips or face of the patient while the current is flowing. Personally, however, we rather like this method, and generally used it in preference to the plate between the shoulders, until our own method of localized biterminal technique was developed. With any of the above methods the current must traverse the body, overcoming its varying resistance, which varies much in different cases. Some danger of too deep penetration is always present, slight, however, with those of large experience, except in case of anomalous blood vessels. With the localized biterminal method where the indifferent electrode consists of a pillar retractor, or a ring placed around the tonsil, this danger is overcome, for here the current alternates between the two terminals, placed comparatively close together, and traverses tonsillar tissue only. The resistance is low, the current mild, the control is at the maximum, the danger at minimum. One should learn the proper strength current for his own machine. To determine this, one method is to bring the spark-gaps very close together, hold the terminals one-sixteenth ($\frac{1}{16}$) of an inch apart, and turn on enough current to get a spark across, then try out on lean meat before practicing it on a patient. Have a good light,

reflected, or what we prefer, a small electric bulb, placed low on the forehead. The average head-light with reflecting hood is unsuitable for this work. We spray the tonsil region with an antiseptic solution, and apply with cotton-wool swab, a 2 per cent solution of nupercaine, or Butyn, or an 8 to 10 per cent solution of cocaine. This is applied several times to tonsil and adjacent region, but a fresh swab is used only once or twice to each tonsil. See that no excess runs into the throat.

Now, the special problems of the individual case arise. Owing to the very great difference in size, shape, consistency and location of tonsils, and the varied results of inflammatory reactions, it should be obvious that a crystallized technique cannot be used in all cases. A moderate-sized or small tonsil, free from abnormal attachments, with no palatal lobe or lingual extensions, and particularly where its possessor does not have a sensitive throat, nor is addicted to nervousness, nor gagging, presents the ideal case for electrocoagulation. Unfortunately for the beginner, the adult tonsil does not often conform to this type. We shall consider some of the problems connected with these departures.

A tonsil that is simply fibrous does not present difficulty. It is apt to be more sensitive than the softer varieties and does not melt down so rapidly under the same strength of current. It is not always necessary to take down to the last vestige of this fibrous tissue, if one is reasonably sure with probing that no crypts remain underneath.

While we desire to preserve mucous membrane, in so far as compatible with conditions obtaining, we do not consider the plicas as very important structures and where they interfere with removal of tonsil tissue, we would advocate their destruction in part or in whole.

In the so-called "buried" or "submerged" tonsil the anterior pillar, or the combined pillar and plica, is well up over the face of the tonsil, and firmly attached to same. In such case we take retractor D the so-called "crutch" electrode, place it firmly at the base, and in front of, the anterior pillar, and insert the coagulating needle at upper pole of tonsils, just beyond the pillar's edge, and make a series of coagulating punctures downward, fairly close together. If this line of punctures is near the posterior edge of the capsule, well and good, if not, another row may be made

beyond. At the next sitting one will find the tonsil much more exposed and easier of access, and the pillar can be somewhat everted and retracted. A follow-up along these lines will bring satisfactory results. We make a distinction between the "face" or medium surface of the tonsil covered by epithelium, and the surrounding parts, covered with the general pharyngeal mucosa and the thin limiting membrane within. When this extends well up over the tonsil, so as to interfere with effective work, we destroy it, or so much of it as seems necessary, especially in those cases where the tonsil is long and flat, narrow antero-posteriorly, and extending out into the throat mesially. If in addition, the plica triangularis is firmly adherent to these structures, it adds another and a double fold of membrane with which to deal. Here also the same treatment will apply. Together these membranes may be very thick, and occasionally a small abscess will be found between the layers. Each case presents a problem of its own, but one which the electric needle may solve, by coagulating from within, or through the whole thickened mass from without.

Of all the problems connected with tonsil coagulation, perhaps that of the palatine lobe is the greatest, particularly where this is situated high up in the soft palate. Usually the patient is of the inveterate gagging type. In addition, the pillars and plicas may be infiltrated and glued together and difficult to retract. It is our experience that a gagger remains a gagger, in spite of local anesthesia, within safety, for there is a psychic, as well as reflex element, and the former is not under control of the local anesthetic. However, with the anesthetic swabbed over pillars, palate and base of tongue, also descending palatine nerve back of posterior pillar, and repeated admonitions to the patient to "breathe" or "pant" with steady and firm pressure on the tongue while the assistant retracts the anterior pillar as well as possible, one may accomplish the desired result, but with more than the average number of treatments. The thickened triangularis below, may be helping to keep the tonsil up, or the semilunaris above may come down over the tonsil like a hood. Either of these structures may be coagulated to the pillar or palate line respectively. The cutting current might be used if available. We make full use of a probe, which is not so apt to penetrate the delicate capsule

as the needle, to ferret out remaining tonsillar tissue.

Sacrifice plicas and capsule if necessary, but to remove a pillar, except in case of malignancy, denotes lack of skill or carelessness. Leave that to the general physician or surgeon, who not infrequently appears to be quite adept at their removal.

Summary

The diagnosis is first to be considered and is important. On this depends advice as to tonsil removal. A history of local and general symptoms should be obtained, followed by a careful examination. A general classification is made into adult and childhood types of tonsil. The safety factor, is paramount in the decision as to the kind of operation. With the initiated, electrocoagulation will usually be the method of choice. The technique usually described is that in which the indifferent electrode is a sheet of metal placed between the shoulders. The writer's method is a localized biterminal technique, where the pillar retractor, or a ring placed around a prominent tonsil, becomes the indifferent electrode. Some of the advantages are: a more perfect control, a lesser resistance and milder current, a less deep penetration of current and less reaction, less danger of injury to pillars and greater convenience.

Difficulties will be encountered, but with care and persistence they may be overcome. The pillars should always be preserved, and as much of the mucous membrane in the tonsillar field as is compatible with complete removal of tonsil tissue.

Discussion

Dr. McGuire (Boonville, Missouri): For some time I have been coagulating tonsils with a biterminal diathermic method. The reason I began doing it was because of the results from surgical enucleation in my part of the country. Fully sixty per cent of the cases done surgically were having severe sore throats and were showing on examination fragments of tonsils and other complications.

It is a very hard matter to get even a reasonable man to change his methods. Therefore, I make no apology for not changing from electro-coagulation. These questions come to me every day. I offer them now because they might be of some benefit to others who have begun and have not had the success I have had. I can't conceive why you don't know if you get all the tonsil out. If you know the difference between the lymphoid tissue and the fauces and pillars, why wouldn't you know when you have destroyed all the tonsil tissue? If you are going to coagulate and do

it properly, coagulate all of the tonsil tissue. If you are going to enucleate surgically, remove all of the tissue. I don't think that needs any comment.

I would give general anesthesia with chloroform to any patient who gags severely. I have one or two of those who are very sensitive to the electric current. I have not found any local anesthetic that is satisfactory in every way.

How many times are we going to coagulate? I don't know, nor can I tell. I coagulate a soft tonsil, one mushy, just full of openings, and I do it pretty rapidly, because that tissue will take a great deal of the current and it will coagulate deeper than the tonsil that is solid and fibrous from being bound by fauces and pillars.

This reference I might make: General surgeons never go into an abdomen to remove an appendix or do an appendectomy and follow the same process, the same technic, nor the same method in every case. Why should you expect to go into a throat with the same depth of application in every case?

Dr. Frederick B. Balmer (Chicago): With Dr. Doane's technic, I am sure that he can execute the things he says he can do. With my technic I think I can do what I pretend to do about it.

A good many features that Dr. Doane has enumerated are very worth while. To consider the matter further would be superfluous. You have heard it and you will have an opportunity to see it in print. I advise you to digest it most thoroughly. Compare the other methods. Take the good out of his and take the good out of the others, put them together and I am sure you will be delighted with the way you can remove tonsils by electrocoagulation.

Dr. Joseph Mindess (Winnipeg, Canada): I have one more question. Dr. Doane, suppose you had a case of a tonsil with very many infected crypts. Would you first treat the infected crypts or would you treat the tonsil right away?

Dr. Doane: If you can remove the debris by suction it would be a good thing to do it, but some of the crypts will have their openings glued together by inflammatory adhesion. If I had a suction apparatus I would use it first and then follow it by coagulation.

Dr. F. C. Smith (Yankton, South Dakota): Why should not the child who presents pathology in the throat be relieved as well as the adult?

Dr. L. L. Doane (Butler, Penna.): In the first place, I am perhaps still old-fashioned enough to believe that tonsils are put into the throat for a purpose and that they serve that purpose during childhood. You know, probably, that in the older child or the young adult there is a tendency for this tissue to atrophy. The process is interfered with by repeated inflammatory action. I still believe that the tonsil itself is a useful thing. Its location is somewhat significant. It is also in the location of the tonsil of Luschka, the so-called adenoid, which when overgrown interferes with

respiration. Of course in those cases, the tonsil of Luschka or the adenoid growth should be removed and respiration admitted through the naso-pharynx and not through the mouth.

I am quite conservative about young children. Of course, if there is a decided infection present, the tonsil might be removed by repeated treatments of coagulation.

As to the thing the gentleman preceding me spoke about, in our part of the country I don't

know where you would find an anesthetist who would use chloroform. We are all afraid of it. I have known from former years when I have practiced medicine in cities in two or three different locations in the south all of which I had to give up on account of my health, that chloroform is used more than it is in the north. Particularly of late years I find very little or no use of chloroform. With the doctor's experience it may be and probably is comparatively safe.

THE REMOVAL OF PATHOLOGICAL TISSUE *EN MASSE* BY INSULATED CUTTING INSTRUMENTS AND THE ELECTROSURGICAL SNARE *

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It was Galvani, Professor of Anatomy in Bologna, who first made observations on the electric current which bears his name. He tested delicate tissues, such as nerves and muscles of the leg of a freshly killed frog. By suspending many legs from hooks of dissimilar metals on an iron bar, he observed the tissue contractions. Volta further investigated this phenomenon and concluded that the source of energy is invested in the association of dissimilar metals and not in the nerve tissue. Michael Faraday further elaborated on these findings and discovered the induction current, electromagnetic phenomena.

The method of removing a tumor en masse, when accessible, by the snare, seems to be a logical procedure. We employ it usually in the removal of tonsils, polypi, anterior middle turbinotomies, etc. In the removal of tonsils we usually have to dissect them first, free them from the pillars and thus make them ready for the snare. The high frequency cutting current does the cutting and dissecting guided by the surgeon's hand.

The oscillations of the current are so rapid that they seem to dissociate the tissue cells, overcoming their cohesion and making them fall asunder immediately like a perfectly clean cut. This current, as ordinarily used, will, by contact cause coagulation not only in the path of the instrument, but also of the lateral tissue cells.

* Read at the Tenth Annual Meeting of the American Congress of Physical Therapy, Omaha, Nebraska, Oct. 5, 1931.

This method, however, is unlike simple surgical coagulation either by straight chemical caustics or by galvanic electric ions. The high frequency is more advanced, more refined, more nearly approaching every-day methods of surgery with added advantages.

The advantages are:

1. Sterilization of the field of operation during operation.
2. Minimizing bleeding.
3. Sealing of blood and lymph vessels, so that infected material cannot be thrown in their circulation.
4. Lessening of surgical shock.
5. Local anesthesia is usually sufficient.
6. Lessening of post-operative pain.

The above applies to all forms of electro-surgery. To them we add the advantages derived from the proposed instruments and method under consideration in this paper.

1. Less or no destruction of tissues that are to remain.

2. No lateral live-wire contact and therefore less heat generated with any but the side next to the tissue to be removed.

As a result —

3. Danger of causing hemorrhage when working in the proximity of large vessels is minimized or abolished.
4. Danger when working in proximity of nerve trunks is diminished or abolished.
5. Sloughing is minimized or abolished.
6. Convalescence is hastened.
7. The insulated knife, as in the case of

the tonsil not only protects the pillars, but also prevents disintegration of the tonsil so that it can be removed en masse.

The snare with its accessories simple and efficient in its construction, has been described in the *Journal of the A. M. A.* in June 16, 1928. It has been simplified still more since and has been made a good, surgeon's instrument. Insulated piano-wire has been added and substituted for copper-wire where resiliency is a factor. The insulated knife has been added which together with the snare makes an electrosurgical unit.

With high frequency, as is known, the current travels along the surface of the wire and knife. Hence, when the wire and knife are insulated with the insulation off on the proximal side of the tissue to be removed only, the insulated distal sides protect the surrounding tissues.

The knife is insulated on both surfaces except the edges, which is accomplished by the capillary attractions of the insulated material. The dissection, due to the high frequency current, is certainly accomplished with great dispatch.

In case of the tonsil, for example, the dissection is done in the usual way. The high frequency current, however, does all the cutting. The pillars are protected by the surface insulation of the knife. The tonsil, too, does not become disintegrated through complete dessication and coagulation as would have been otherwise the case were the flat surface of the knife, uninsulated to come in contact with the tonsillar tissue. The wire loop again is insulated with the insulation off mostly on the inner concave surface. With the insulation off on only one side, we surely possess a very fine cutting instrument. For no matter how fine a wire we use, it is made still finer by insulating the other sides thus protecting the remaining tissue cells from unnecessary destruction.

The above applies especially to benign tumors. But even in malignant tumors, as we usually make our incision in what we consider a safety zone in normal tissue, the insulation ought to be of advantage, especially in regards to sloughing. The sealing of the blood and lymph vessels takes place just the same. The effect of concentration of the cur-

rent is inversely proportional to the applied area.

The heat generated at the point of contact is soon, however, carried away by the surrounding fluids: blood and lymph circulation. It is analogous to steam let out by the locomotive. The pressure energy forces the steam up in a slender, straight line, near the exit. It widens out, diffuses more and more as it goes away from the source until it becomes conical in shape and then thins out and diffuses in all directions.

In the human body it is more so since the active forces, the circulations, carry away the heat, the product of electric energy meeting resistance.

I want to express my thanks to Prof. L. H. Young of Massachusetts Institute of Technology for his interest and encouragement when the idea of the snare first occurred to me (while attending the operations by Dr. Harvey Cushing) and to C. Skoglund, head of the insulation department, General Electric Company, West Lynn, Mass., for his interest and co-operation in the insulation especially that of the knife.

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Discussion

Dr. Lewis J. Silvers (New York City): It is most gratifying to note that those among us who have the latent ability to invent new means of improving our end-results, are taking advantage of this innate capacity.

Dr. Prenn has unquestionably altered my viewpoint on masse tonsil enucleation by the snare method, if I can overcome the untoward coagulation effects of the cutting current. Secondary hemorrhage, more or less severe at times, has been caused by the separation of a large coagulum following snare enucleation with the instruments now at hand. It was this factor which led me to study the various methods by which one could avoid the separation of large sloughs of innocuous tissue, which is inevitable with the uninsulated knife and snare.

With the perfection of the insulated snare and endotherm knife, I can now predict that the multi-stage electrosurgical tonsil extirpation will be more efficiently performed. The slower and more tedious extirpation will be greatly aided by the more rapid masse enucleation of the projecting lymphoid tissue in large, vascular tonsils. The factor of safety alone will determine how rapidly we may attempt to perform a perfect electrosurgical tonsillectomy.

Detailed Program

ELEVENTH ANNUAL SESSION American Congress of Physical Therapy

SEPTEMBER 6, 7, 8, 9, 1932 *Hotel New Yorker* NEW YORK, N. Y.

RULES GOVERNING THE READING OF PAPERS AND DISCUSSIONS

No address or paper before the Congress shall occupy more than twenty minutes in its delivery (addresses of specially invited guests excepted) and no member shall speak more than five minutes or more than one time on any one subject, provided each essayist be allowed ten minutes in which to close the discussion. This rule must be strictly adhered to.

All papers read before the Congress shall be the property of the Congress for publication in the official journal. Each paper shall be deposited with the Secretary when read.

No paper shall be published except upon recommendation of the Publication Committee, which shall consist of the Editor as Chairman and other duly appointed members of the Congress.

The General Headquarters of the Clinical Congress of Physical Therapy will be located at the Hotel New Yorker, where all matters pertaining to the meeting will be cared for.

The information bureau and congress postoffice are in connection with the registration bureau.

Suggested Advice to Members of the Organization Respecting Reduction Authorized on the Certificate Plan for Benefit of Members and Dependent Members of Their Families

IMPORTANT NOTICE

As the railroads have reduced the required number of certificates to 100 the reduced fare on the Certificate Plan is practically assured this year. BE SURE TO OBTAIN A RAILROAD CERTIFICATE.

THE HOTEL NEW YORKER has been selected as the official headquarters for the Eleventh Annual Convention of the American Congress of Physical Therapy.

There will be excellent accommodations for all who attend the sessions and room rates will be as closely as possible as requested in reservations.

The splendid exhibition hall, the large section meeting rooms, the popular priced dining rooms, and the constant desire of the hotel management to make everybody comfortable—and the convention a success—speak well for the selection of this hotel for the 1932 headquarters.

Reservations for rooms should be made as early as possible. Write directly to the Hotel New Yorker, specifying the accommodations you desire. Or reservations may be made by writing

to the Executive Secretary of the Congress, Suite 716, 30 North Michigan Avenue, Chicago.

A reduction of one and one-half fare on the "Certificate Plan" will apply for members and dependent members of their families attending the meeting of

AMERICAN CONGRESS OF PHYSICAL THERAPY to be held at Hotel New Yorker, September 6, 7, 8, 9, 1932.

The following directions are submitted for your guidance:

1. Tickets at the regular one-way tariff fare for the going journey may be obtained on any of the following dates (but not on any other date) September 6 to 9, inclusive. Be sure that, when purchasing your going ticket, you request a "CERTIFICATE." Do not make the mistake of asking for a "receipt."

2. Present yourself at the railroad station for ticket and certificate at least thirty minutes before departure of train on which you will begin your journey.

3. Certificates are not kept at all stations. If you inquire at your home station, you can ascertain whether certificates and through tickets can be obtained to place of meeting. If not obtainable at your home station, the agent will inform you at which station they can be obtained. You can in such case, purchase a local ticket to the station which has certificates in stock, and from there you can buy a through ticket to place of meeting and at the same time ask for and obtain a "Certificate Plan" certificate.

4. Immediately on your arrival at the meeting, present your certificate to the endorsing officer, A. R. Hollender, Chairman, as the reduced fare for the return journey will not apply unless the certificate is properly endorsed by him and validated by a railroad Special Agent as provided for by the certificate.

5. Arrangements have been made for validation of certificates by a Special Agent of the carriers on September 6-9, inclusive, provided the required minimum of 150 certificates is presented.

6. No refund of fare will be made because of failure to obtain a proper certificate when purchasing going ticket.

7. To prevent disappointment, it should be understood that the reduction on the return journey is not guaranteed, but is contingent on an attendance at the meeting, of not less than 150 members of the organization and dependent members of their families, holding regularly issued certificates obtained from ticket agents at starting points, each showing payment of regular one-way adult tariff fare of 67 cents or more on going journey.

8. If the necessary minimum of 150 certificates is presented at the meeting and your certificate is duly validated by the Special Agent, you will be entitled to purchase a return ticket via the same route over which you made the going journey at one-half of the regular one-way tariff fare from the place of meeting to the point at which your certificate was issued.

9. Return ticket issued at the reduced fare will not be good on any limited train on which such reduced fare transportation is not honored.

The above arrangements will in all probability apply to the following passenger associations, several of which have already granted our application for excursion fares.

1. Central Passenger Association.
2. Trunk Line Association.
3. New England Passenger Association.
4. Southeastern Passenger Association.
5. Western Passenger Association.
6. Southwestern Passenger Association.
7. Trans-continental Passenger Association.
8. Canadian Passenger Association (Eastern Lines).

GENERAL INFORMATION

Please note in the program which follows that six distinct sections are represented. The ab-

breviations adopted to indicate the respective sections are:

- M — Medicine and the Medical Specialties.
- S — Surgery and the Surgical Specialties.
- EENT — Eye, Ear, Nose, Throat.
- J — Joint Section.
- CT — Colonic Therapy.
- ST — Stomatology.
- E — Educational Conference.

The papers are numbered starting with 1 (one) in each section, so that S 5 would indicate the fifth paper in the Surgical Section, EENT 3, would indicate the third paper in the Eye, Ear, Nose and Throat Section, ST 4, the fourth paper in the Stomatological Section, etc. This plan is simple to follow and will avoid the confusion of consecutive numbering which does not at the same time indicate the particular section in which a paper is to be read.

SECTIONAL MEETINGS

There will be a joint meeting of all sections each morning at 9 o'clock. The afternoons will be devoted to sectional meetings and special gatherings such as the educational conference will be held on certain evenings as indicated in the program. The time of the business sessions has been arranged so as not to conflict with the scientific sessions. Several evenings have been left open for such entertainment as the guests and fellows may choose for themselves.

THE OPENING SESSION AND THE FOREIGN GUEST OF HONOR

The formal opening of the Congress will take place on Tuesday, September 6, at 10 o'clock in joint session. Besides brief addresses by representatives of the several local county societies, the president of the Congress for 1932-33 will be inducted into office. Attention is directed to the fact that numerous guests of honor have been invited to attend the Congress, and the foreign guest, representing the English societies and the Order of St. John is F. Howard Humphris, M.D., of London, England. Dr. Humphris will present several addresses and will take part in the discussion of certain papers.

THE PRESIDENT'S DINNER

On the afternoon of Monday, September 5, the informal opening of the Congress will take place. Registration, inspection of exhibits, committee meetings and the President's Dinner will occupy the afternoon and evening. The session will adjourn by 8 o'clock allowing the evening for entertainment. Fellows and guests are urged to plan their transportation so that they will arrive sometime during the day, Monday. This will not be difficult because of the week-end and the extra day, Monday which is Labor Day and a National holiday. The Convention Committee desires to have a large attendance at the President's Dinner. If you contemplate attending this function, please notify the Executive Secretary of the Congress or the local Convention Chairman, Dr. Norman E. Titus, 57 West 57th Street, New York.

THE EXHIBITS

The exhibits have been selected with a great deal of care. The manufacturers and dealers are outstanding in their fields. They will display the newest developments in lamps, high-frequency machines, low-wave current machines, static x-ray, oxygen and electrosurgical units. Fellows and guests are urged to make frequent inspection

tours of the exhibits during the periods indicated on the program for this purpose.

THE EDUCATIONAL CONFERENCE

The Educational Conference will be held in evening session, Tuesday, September 6. See the main program for the time and place. Two symposia have been arranged, a physician's and a technician's. The discussion will be an open one and will permit of an excellent opportunity for the physician and the technician to exchange ideas which will more directly further the relationship of doctor and assistant in the physical therapy specialty. This conference should appeal to everyone interested in the newer science, but in particular to those engaged in teaching in the medical schools and to technicians serving in private offices as well as in institutions.

ENTERTAINMENT

Fellows and guests are urged to bring their families to New York. Arrangements will be made for tours of the city and for visits to places of interest. New York is the ideal city for the newer theatrical performances, for all sorts of sports and for various summer recreations. There will be a special ladies' committee on entertainment and the hotel management will co-operate in every way possible to entertain the members of your families while you are attending the scientific meetings. Several evenings have been left open so that there will be ample opportunity for recreation.

CLINICS

There will be no clinics in the hotel. All clinics will be held on Saturday, September 10, in various New York hospitals. The list of hospitals and the hours during which clinics will be conducted will be announced in due time. The preliminary program of clinics is listed. More detailed information may be obtained either from the director of the physical therapy department of the hospital or from the local (N. Y.) convention chairman.

TRANSPORTATION

While the certificate plan will prevail, granting fare and one-half if a designated number of certificates are secured, attention is directed to the round-trip fares in vogue in various parts of the country. These round-trip fares are inexpensive from distant points, and in most instances, approximate about one and one-third fares for the two-way journey. Fellows and guests are advised to communicate with their railroad passenger agents for specific details of summer travel. In any event, the round-trip fare is preferable. If, however, you cannot obtain this privilege, be sure TO ASK FOR A RAILROAD CERTIFICATE. This is important. In spite of our numerous requests, fellows often fail to ask for certificates, thereby hindering the prospects of reduced fares for the homeward journey.

SCHEDULE OF DAILY ACTIVITIES

MONDAY, SEPTEMBER 5

2:00 P. M. Registration and Inspection of Exhibits.

Exhibit Hall, 3rd floor.

4:00 P. M. Meetings of Special and Standing Committees and Board of Governors.

Parlors D, E, H, 4th floor.

6:00 P. M. President's Dinner.
North Ball Room, 2nd floor.

TUESDAY, SEPTEMBER 6

- 8:00 to 10:00 A. M. Registration and Inspection of Exhibits.**
Exhibit Hall, 3rd floor.
- 10:00 A. M. Formal Opening of Congress—Joint Session.**
Grand Ball Room, 2nd floor.
- 1:00 P. M. Inspection of Exhibits.**
Exhibit Hall, 3rd floor.
- 2:00 P. M. Sectional Meetings.**
MEDICINE—North Ball Room, 2nd floor.
SURGERY—Grand Ball Room, 2nd floor.
EYE, EAR, NOSE, AND THROAT—
Parlors F and G, 4th floor.
- 5:00 P. M. Business Session for Fellows of the Congress.**
North Ball Room, 2nd floor.
- 6:00 P. M. Inspection of Exhibits.**
Exhibit Hall, 3rd floor.
- 8:00 P. M. Educational Conference.**
North Ball Room, 2nd floor.

WEDNESDAY, SEPTEMBER 7

- 8:00 A. M. Registration and Inspection of Exhibits.**
Exhibit Hall, 3rd floor.
- 9:00 A. M. Joint Meeting of All Sections.**
Grand Ball Room, 2nd floor.
- 1:00 P. M. Inspection of Exhibits.**
Exhibit Hall, 3rd floor.
- 2:00 P. M. Sectional Meetings.**
MEDICINE—North Ball Room, 2nd floor.
SURGERY—Grand Ball Room, 2nd floor.
EYE, EAR, NOSE AND THROAT—
Parlors F and G, 4th floor.

THURSDAY, SEPTEMBER 8

- 8:00 to 9:00 A. M. Registration and Inspection of Exhibits.**
Exhibit Hall, 3rd floor.
- 9:00 A. M. Joint Meeting of All Sections.**
Grand Ball Room, 3rd floor.
- 1:00 P. M. Inspection of Exhibits.**
Exhibit Hall, 3rd floor.
- 2:00 P. M. Sectional Meetings.**
MEDICINE—North Ball Room, 2nd floor.
SURGERY—Grand Ball Room, 2nd floor.
EYE, EAR, NOSE AND THROAT—
Parlors F and G, 4th floor.
- 5:00 P. M. Business Session.**
North Ball Room, 2nd floor.

FRIDAY, SEPTEMBER 9

- 8:00 to 9:00 A. M. Registration and Inspection of Exhibits.**
Exhibit Hall, 3rd floor.
- 9:00 A. M. Joint Meeting of All Sections, except Sections on Stomatology and Colonic Therapy which will hold independent sessions for Friday only.**
Grand Ball Room, 2nd floor.
- 9:00 A. M. Section on Stomatology.**
Parlor E, 4th floor.
- 9:00 A. M. Section on Colonic Therapy.**
Parlor C, 3rd floor.
- 1:00 P. M. Inspection of Exhibits.**
Exhibit Hall, 3rd floor.
- 1:30 P. M. Section Meetings.**
MEDICINE—North Ball Room, 2nd floor.
SURGERY—Grand Ball Room, 2nd floor.
EYE, EAR, NOSE AND THROAT—
Parlors F and G, 4th floor.
STOMATOLOGY—Parlor E, 4th floor.
COLONIC THERAPY—Parlor C, 3rd floor.

CLINICS *

SATURDAY, SEPTEMBER 10, 1932

- The Medical Center—Norman E. Titus, M.D., Director.
168th Street and Broadway.
- Fifth Avenue Hospital—William B. Snow, Jr., M.D., Director.
105th Street and 5th Avenue.
- Beekman Street Hospital—Randolph Raynolds, M.D., Director.
117 Beekman and Water Streets, 1 block north of 2nd and 3rd Avenue, Elevated, Fulton Street Station.
- Misericordia Hospital—M. C. L. McGuiness, M.D., Director.
86th Street, East of Avenue A.
- Beth Israel Hospital—William Bierman, M. D., Director.
Stuyvesant Park E. 18th Street and 2nd Avenue.
- Reconstruction Hospital—Harold M. Herring, M.D., Director.
100th Street and Central Park West.
- Polyclinic Medical School and Hospital—Richards Kovacs, M.D., Director.
50th Street at 8th and 9th Avenue.
- Montefiore Hospital for Chronic Diseases—I. M. Leavy, M.D., Director.
210th Street and Bainbridge Avenue.
- Mt. Sinai Hospital—Heinrich F. Wolf, M.D., Director.
100th Street and 5th Avenue.
- Clinics by members of the Stomatological Section will be given at the New York University, Bellevue Hospital, and Sydenham Hospital. Arrangements are being completed to visit the Stomatological Services of the Lenox Hill Hospital and other hospitals in New York City. These announcements will appear in the final program.

* More detailed information of all Clinics will appear in the final program.

MONDAY, SEPTEMBER 5, 1932

2:00 P. M.

INFORMAL OPENING OF CONGRESS
Registration and Inspection of Exhibits

Exhibit Hall, 3rd floor.

4:00 P. M.

Meetings of Special Committees.

Meeting of Board of Governors.

Rooms D, E, and H, 4th floor.

6:00 P. M.

President's Dinner.

North Ball Room, 2nd floor.

TUESDAY, SEPTEMBER 6, 1932

8:00 A. M. to 10:00 A. M.

Registration and Inspection of Exhibits.

Exhibit Hall, 3rd floor.

10:00 A. M.

Formal Opening of Congress.

Joint Meeting of All Sections.

Grand Ball Room, 2nd floor.

JOINT MEETING OF ALL SECTIONS

TUESDAY, SEPTEMBER 6, 1932

10:00 A. M.

GRAND BALL ROOM—2nd FLOOR

J 1. Call to Order: Formal Opening of Convention.

F. H. EVERHARDT, M.D.,
President, 1931-1932, American Congress
of Physical Therapy.

St. Louis.

J 2. Addresses of Welcome.

Norman E. Titus, M.D.,
Local Chairman, Convention Committee.

David J. Kaliski, M.D.,
President, Medical Society of the County of
New York.

Arthur S. Driscoll, M.D.,
Vice-President, Richmond County Medical
Society.

William Linder, M.D.,
President, Medical Society of the County of
Kings.

Heinrich Wolf, M.D.,
President, New York Physical Therapy
Society.

F. Howard Humphris, M.D.,
On behalf of English Societies and Order of
St. John.

**J 3. Induction of the President-Elect. Address:
Further Considerations of Diathermy
in Malignancy.**

GUSTAV KOLISCHER, M.D.,
Senior Urologist to the Michael Reese and
Mt. Sinai Hospitals,

Chicago.

Discussion: Harry E. Stewart, M.D., New

Haven; George A. Wyeth, M.D., New York;
William L. Clark, M.D., Philadelphia.

J 4. Address: Artificial Sunlight in the Treatment of Health.

F. HOWARD HUMPHRIS, M.D.,
London, England.

Discussion: S. I. Muller, Long Island City;
Harry E. Stewart, M.D., New Haven; Edgar
Mayer, M.D., Saranac Lake, N. Y.

**JOINT MEETING OF ALL SECTIONS
FOR FELLOWS OF THE CONGRESS**

TUESDAY, SEPTEMBER 6, 1932

5:00 P. M.

NORTH BALL ROOM—2nd FLOOR

FIRST FORMAL BUSINESS SESSION

Gustav Kolischer, M.D., President

1. Minutes.
2. Officers and Committees' Reports.
3. Old Business.
4. New Business. New Constitution and By-Laws.
5. Appointment of Nominating Committee.
6. Good and Welfare.

JOINT MEETINGS OF ALL SECTIONS

WEDNESDAY, SEPTEMBER 7, 1932

GRAND BALL ROOM—2nd FLOOR

9 A. M.

Luther A. Tarbell, M.D., Section Chairman

J 5. Physical Therapeutic Measures in the Treatment of Tuberculosis.

EDGAR MAYER, M.D.,
Medical Director, Northwood's
Sanitarium, National Variety
Artists' Sanitarium, etc.
Saranac Lake, N. Y.

Discussion: Martin E. Rehfuss, M.D., Philadelphia;
Grant Thorburn, M.D., New York.

J 6. Sanitoria Aspects of Tuberculosis with Special Reference to Non-Surgical Methods of Treatment.

ALEXIUS M. FORSTER, M.D.,
Physician-in-Chief, Cragmoor Sanitarium,
Colorado Springs.

Discussion: George J. Ornstein, M.D., New York;
Luther A. Tarbell, M.D., New Haven,
Conn.

J 7. The Present Trend of the Tuberculosis Problem.

BENJAMIN GOLDBERG, M.D.,

Associate Professor of Medicine, University of
Illinois College of Medicine; Formerly Medi-
cal Director, Chicago Municipal Tuberculosis
Sanitarium.

Chicago.

Discussion: Mr. Godias J. Drolet, New York;

Edward S. McSweeney, M.D., New York; Samuel A. Loewenberg, M.D., Philadelphia.

J 8. Some Possibilities of External Irradiation by Means of the Four Gram Radium Element Pack.

BERNARD F. SCHREINER,
M.D., F.A.C.S.,
WILLIAM WEHR, M.D., and
MELVIN C. REINHARD, M.A.,
State Institute for the Study of Malignant Diseases.

Buffalo, N. Y.

Discussion: F. Howard Humphris, M.D., London, England; A. F. Tyler, M.D., Omaha; Harold Swanberg, M.D., Quincy, Ill.

J 9. Radiation Therapy in Medicine—Its Function and Application.

IRA I. KAPLAN, M.D.,
Director, Division of Cancer,
Department of Hospitals, etc.
New York.

Discussion: M. J. Sittenfield, M.D., New York; Douglas C. Moriarta, M.D., Saratoga Springs, N. Y.; M. I. Strahl, M.D., New York.

J 9A. The Cancer Problem from the Standpoint of the General Surgeon.

MAX THOREK, M.D.,
Attending Surgeon, Cook County Hospital; Surgeon-in-Chief, American Hospital.
Chicago.

Discussion: F. D. Bullock, M.D., New York; Arthur E. Billinger, M.D., Philadelphia; R. J. Behan, M.D., Pittsburgh.

JOINT MEETING OF ALL SECTIONS

THURSDAY, SEPTEMBER 8, 1932

9:00 A. M.

GRAND BALL ROOM—2nd FLOOR

A. F. Tyler, M.D., Section Chairman

J 10. The Rôle of Physical Therapy in the Treatment of Pre-Cancerous and Cancerous Dermatoses.

JOSEPH JORDAN ELLER, M.D.,
Assistant Professor of Dermatology and Syphilology,
New York Post Graduate Medical School and Hospital.
New York.

Discussion: Disraeli Kobak, M.D., Chicago; Frederick L. Nelson, M.D., Ottumwa, Ia.; Frank C. Combes, Jr., New York.

J 11. Factors Influencing End-Results of Electrosurgery.

GRANT E. WARD, M.D.,
Assistant in Clinical Surgery, Johns Hopkins University; Instructor in Surgical Anatomy and Oncology, University of Maryland Medical School.
Baltimore.

Discussion: George A. Wyeth, M.D., New York; Gustav Kolischer, M.D., Chicago; R. W. Fouts, M.D., Omaha; Ralph H. Henry, M.D., Allentown, Pa.

J 12. Medical Use of Radium in Minimal Doses.

F. HOWARD HUMPHRIS, M.D.,
London, England.

Discussion: A. F. Tyler, M.D., Omaha; Frank M. Mikels, M.D., Los Angeles.

J 13. The Rôle of Physical Therapy in the Treatment of Fractures.

CLAY RAY MURRAY, M.D.,
Assistant Professor of Surgery, Columbia University, School of Medicine; Assistant Director, Fracture Service, Presbyterian Hospital.

New York.

Discussion: Max Thorek, M.D., Chicago; Frank H. Walke, M.D., Shreveport; Thomas T. Thomas, M.D., Philadelphia; M. H. Todd, M.D., Norfolk, Va.

J 14. Clinical Report on the Treatment of Infections of the Bladder by Direct Internal Ultraviolet Irradiation.

JOHN R. CAULK, M.D., and
F. H. EWERTHARDT, M.D.,
Washington University Medical School.

St. Louis

Discussion: Victor C. Pedersen, M.D., New York; John B. Lownes, M.D., Philadelphia; W. S. Pugh, M.D., New York.

J 15. Late Progress in Radiotherapy.

MAX CUTLER, M.D.,
Director of Tumor Clinic, Michael Reese Hospital.

Chicago.

Discussion: Ira I. Kaplan, M.D., New York; F. Howard Humphris, M.D., London, Eng.; A. F. Tyler, M.D., Omaha.

J 15A. Surgical Diathermy in Cancer of the Rectum.

ALFRED STRAUSS, M.D.,
Attending Surgeon, Michael Reese Hospital.

Discussion: Gustav Kolischer, M.D., Chicago; Grant E. Ward, M.D., Baltimore.

JOINT MEETING OF ALL SECTIONS FOR FELLOWS OF THE CONGRESS

THURSDAY, SEPTEMBER 8, 1932

NORTH BALL ROOM—2nd FLOOR

5:00 P. M.

FINAL FORMAL BUSINESS SESSION

Gustav Kolischer, M.D., President

1. Minutes.
2. Unfinished Business.
3. New Business.
4. Committee Reports (Nominating Committee).
5. Good and Welfare.

JOINT MEETING OF ALL SECTIONS**FRIDAY, SEPTEMBER 9, 1932****GRAND BALL ROOM—2nd FLOOR**

9:00 A. M.

F. H. Ewerhardt, M.D., Section Chairman

J 16. Disease and Climate.

VICTOR E. LEVINE, M.D., Ph.D.,
 Professor of Bio-Chemistry and Nutrition,
 Creighton University, School of Medicine
 Omaha.

Discussion: Alexius M. Forster, M.D., Colorado Springs; John Severy Hibben, M.D., Pasadena; Edward S. McSweeney, M.D., D.P.H., New York; C. A. Mills, M.D., Cincinnati.

J 17. Physical Therapy: An Aid to Routine Medical and Surgical Practice.

FRANK H. KRUSEN, M.D.,
 Associate Dean, Temple University School of Medicine.

Philadelphia.

Discussion: R. W. Fouts, M.D., Omaha; John S. Coulter, M.D., Chicago; J. C. Elsom, M.D., Madison, Wis.; Richard Kovacs, M.D., New York.

J 18. The Evolution of the X-ray Tube (Illustrated).

J. D. MORGAN, M.D.,
 Urologic Clinic, Philadelphia Skin and Cancer Hospital.
 Philadelphia.

Discussion: David E. Ehrlich, M.D., New York; Joseph E. Roberts, Camden, N. J.; W. L. Cahall, M.D., Utica, N. Y.

J 19. Corrective Exercise Supplementing Orthopedic Treatment of Scoliosis.

DANIEL H. LEVINTHAL, M.D.,
 Associate in Orthopedic Surgery, Northwestern University Medical School, Attending Orthopedic Surgeon, Cook County and Michael Reese Hospital.

Chicago.

Discussion: Mather Cleveland, M.D., New York; J. H. McCurdy, M.D., Springfield, Mass.

J 20. Therapeutic Properties of the Mercury Spectrum.

JOHN SEVERY HIBBEN, M.D.,
 Secretary, Pacific Physical Therapy Association.
 Pasadena, Cal.

Discussion: Richard Kovacs, M.D., New York; Jerome Weiss, M.D., Brooklyn; N. H. Polmer, M.D., New Orleans.

J 21. Short Wave Research in Biology.

G. MURRAY MCKINLEY, M.S.,
 Instructor of Zoology, University of Pittsburgh.
 Pittsburgh, Pa.

Discussion: Charles Packard, Ph.D., New York; Frank T. Woodbury, M.D., New York; Victor E. Levine, Ph.D., M.D., Omaha.

EDUCATIONAL CONFERENCE**TUESDAY, SEPTEMBER 6, 1932****NORTH BALL ROOM—2nd FLOOR**

8:00 P. M.

F. H. Ewerhardt, M.D., Section Chairman

PHYSICIANS' CONFERENCE**E 1. The Work of the Committee on Physical Therapy of the Medical Society of the State of New York.**

RICHARD KOVACS, M.D.,
 Clinical Professor and Director of Physical Therapy, Polyclinic Medical School and Hospital of New York.
 New York.

E 2. Physical Therapy Departments in City Institutions.

CHARLES F. McCARTY, M.D.,
 Director of Physical Therapy, New York City Hospitals.
 New York.

E 3. The Teaching of Physical Therapeutics in the Medical School Curriculum.

FRANK H. KRUSEN, M.D.,
 Associate Dean, Temple University, School of Medicine.
 Philadelphia.

TECHNICIANS' CONFERENCE**E 4. The Development of the Present Standards of Training for Physical Therapy Technicians.**

MISS KATHLEEN KING,
 Secretary, New York Chapter, American Physiotherapy Association.
 New York.

E 5. The Future Problems in the Education of Physical Therapy Technicians.

MISS M. E. HIBBLER,
 President, New York Chapter, American Physiotherapy Association.
 New York.

E 6. The Value of Physiotherapy in a Visiting Nurse Organization.

MISS HELEN KING,
 Supervisor of Physiotherapy, Detroit Visiting Nurses Association.
 Detroit.

SECTION ON**Surgery and the Surgical Specialties****TUESDAY, SEPTEMBER 6, 1932****GRAND BALL ROOM—2nd FLOOR**

2:00 P. M.

Frank H. Walke, M.D., Section Chairman

S 1. Electrosurgical Knife in Major Surgical Cases.EDWARD H. TROWBRIDGE, M.D.,
Consulting Surgeon, Worcester City Hospital.
Worcester, Mass.

Discussion: Wm. H. Schmidt, M.D., Philadelphia; Beverly Chew Smith, M.D., New York; Cleveland H. Shutt, M.D., St. Louis.

S 2. The Superiority of Radiation Therapy in the Treatment of the Uterine Cervical Cancer.HAROLD SWANBERG, M.D., F.A.C.S.,
and

ARTHUR E. PERLEY, M.D.,

Radiologist, St. Mary's Hospital; Roentgenologist Blessing Hospital; Editor, *The Radiological Review*; and Associate Roentgenologist, St. Mary's Hospital, respectively.

Quincy, Ill.

S 3. Radium Therapy in Cancer of the Uterine Cervix.A. F. TYLER, M.D.,
Professor of Clinical Radiology,
Creighton University, School of
Medicine.

Omaha.

S 4. Radiotherapy in Uterine Fibroids and Climacteric Metorrhagia.ISAAC LEVIN, M.D.,
Clinical Professor of Cancer Research,
New York University.
New York.

Discussion: James A. Corscaden, M.D., New York; William V. Cavanagh, M.D., New York; William P. Healy, M.D., New York; Wm. J. Thudium, M.D., Philadelphia.

S 5. Salpingography—Its Significance in Gynecology.MORTIMER N. HYAMS, M.D.,
Assistant Professor of Gynecology, New York Post-Graduate Hospital and Medical School;
Assistant Professor of Gynecology, Columbia University, School of Medicine.
New York.

Discussion: F. H. Humphris, M.D., London, Eng.; M. A. Roblee, M.D., St. Louis; Victor L. Gould, M.D., St. Louis.

S 6. Practical Anesthesia in Electrosurgery.WILLIAM E. GROUND, M.D.,
Staff Surgeon, St. Mary's Hospital.
Superior, Wis.

Discussion: William Bierman, M.D., New

York; William K. Clark, M.D., Philadelphia; William C. Dean, M.D., Brooklyn; William W. Walker, M.D., Baltimore.

SECTION ON**Surgery and the Surgical Specialties****WEDNESDAY, SEPTEMBER 7, 1932****GRAND BALL ROOM—2nd FLOOR**

2:00 P. M.

Gustav Kolischer, M.D., Section Chairman

SYMPOSIUM ON UROLOGY**S 7. Relief of Prostatic Obstruction by Trans-Urethral Electrosurgery.**CLYDE WILSON COLLINGS, M.D.,
Instructor in Urologic Surgery, New York University Medical School and New York University Graduate School; Chief Urologic Clinic, New York University Medical School.

New York.

S 8. Recent Developments in the Cautery Punch Operation for the Relief of Prostatic Obstruction.JOHN R. CAULK, M.D.,
Professor of Clinical Genito-Urinary Surgery, and Chief of Genito-Urinary Clinic, Washington University Medical School.

St. Louis.

S 9. Surgical Diathermy in Malignant Tumors of the Bladder.FREDERICK L. NELSON, M.D.,
Attending Surgeon, Ottumwa General Hospital and St. Joseph's Hospital.
Ottumwa, Ia.**S 10. Physical Therapy in Urology: Retrospective and Prospective.**VICTOR C. PEDERSEN, M.D.,
Consultant, Edwin Gould Foundation for Englewood, N. J. Hospital.
New York.

Discussion: Gustav Kolischer, M.D., Chicago; John B. Lownes, M.D., Philadelphia; George F. Cahill, M.D., New York; Simon A. Beisler, M.D., New York; A. G. Fleischman, M.D., Des Moines, Ia.; Julius H. Frischer, M.D., Kansas City, Mo.

S 11. The Treatment of Verruca Plantaris by Electrocoagulation.K. G. HANSSON, M.D.,
Instructor in Orthopedics, Cornell University Medical School.
New York.

Discussion: Howard Fox, M.D., New York; Abram Strauss, M.D., Philadelphia; N. E. Titus, M.D., New York.

**SECTION ON
Surgery and the Surgical Specialties**

THURSDAY, SEPTEMBER 3, 1932
GRAND BALL ROOM—2nd FLOOR
2:00 P. M.

N. H. Polmer, M.D., Section Chairman

S 12. The Treatment of Flat Feet by Physical Therapy Measures.

J. C. ELSOM, M.D.,
Associate Professor of Physical Therapy, University of Wisconsin Medical School.
Madison, Wis.

S 13. Physical Therapy in Static Disorders of the Foot.

DAVID A. LUBARSKY, M.D.,
Professor of Physical Therapy, Foot Clinics of New York; Physical Therapist to White Plains and Grasslands Hospitals.
White Plains, N. Y.

Discussion: James R. Martin, M.D., Philadelphia, Pa.; F. H. Ewerhardt, M.D., St. Louis; Joseph A. Scattergood, Jr., M.D., Westchester, Pa.

S 14. The Effect of Different Muscle Groups on Lordosis.

J. H. McCURDY, M.D.,
Medical Director and Professor of Physical Education, International Y. M. C. A. College.
Springfield, Mass.

S 15. Clinical Application of Abdominal Exercises. Resistive Movement in Joint Injuries.

F. H. EWERHARDT, M.D.,
Assistant Professor of Physical Therapeutics, Washington University School of Medicine.
St. Louis, Mo.

S 16. Corrective Gymnastics in Orthopedics.

WALTER TRUSLOW, M.D.,
Consulting Orthopedic Surgeon, Brooklyn, St. John's, Kingston Ave. Hospitals, etc.
Brooklyn, N. Y.

Discussion: Randolph Raynolds, M.D., New Haven, Conn.; Robert D. Schrock, M.D., Omaha; S. Kleinberg, M.D., New York; Daniel H. Levinthal, M.D., Chicago; Robert L. Johnston, M.D., Cleveland.

**SECTION ON
Surgery and the Surgical Specialties**
FRIDAY, SEPTEMBER 9, 1932
GRAND BALL ROOM—2nd FLOOR
1:30 P. M.

Wm. E. Ground, M.D., Section Chairman

S 17. The Importance of Physiotherapy in the Care of Industrial Injuries.

G. E. BARR, M.D.,
Staff, Methodist and St. Vincent's Hospitals.
Sioux City, Ia.

S 18. Physical Therapy in Relation to the Disability Period of the Industrially Injured.

FRANK H. WALKE, M.D.,
Staff, Schumpert Memorial Hospital; Highland Sanitarium and the Pines (T. B.) Sanitorium.

Shreveport, La.

Discussion: John J. Moorhead, M.D., New York; J. E. M. Thompson, M.D., Lincoln, Neb.; William E. Ground, M.D., Superior Wis.; Heinrich F. Wolf, M.D., New York.

S 19. Traumatic Synovitis.

NORMAN E. TITUS, M.D.,
Director of Physical Therapy, College of Physicians and Surgeons, Columbia University.

New York.

S 20. The Treatment of Sub-Acromial and Sub-Deltoid Bursitis.

MAURICE WEISBLUM, M.D.,
Director of Physical Therapy, Departments, Jewish Hospital and Mt. Sinai Hospital.
Philadelphia.

Discussion: Charles F. McCarty, M.D., Brooklyn; N. H. Polmer, M.D., New Orleans; L. H. Levy, M.D., New York; N. E. Titus, M.D., New York.

S 21. A Contribution to Physical Therapy Technique from the Hospital for Joint Diseases.

J. WEISS, M.D.,
Attending Physical Therapist, Hospital for Joint Diseases, New York; Assistant Attending Orthopedic Surgeon, Long Island College Hospital.
Brooklyn, N. Y.

S 22. Influence of Physical Therapy on Cancer Mortality.

R. J. BEHAN, M.D.,
Staff, St. Joseph's Hospital, S. S. Pittsburgh, Pa.; Pittsburgh City Homes and Hospital, Mayview, Pa.
Pittsburgh, Pa.

Discussion: Disraeli Kobak, M.D., Chicago; William H. Woglom, M.D., New York; Isaac Levin, M.D., New York; H. H. Bass, M.D., Durham, N. C.

S 23. Galvanism and Diathermy in Endocervicitis and Erosions.

WM. H. GUILLIUM, M.D.,
Roentgenologist, Hazard Hospital, Long Branch, N. J.
Asbury Park, N. J.

Discussion: Mortimer Hyams, M.D., New York; F. H. Walke, M.D., Shreveport, La.; F. H. Morse, M.D., Boston, Mass.

SECTION ON**Medicine and the Medical Specialties**

TUESDAY, SEPTEMBER 6, 1932
NORTH BALL ROOM—2nd FLOOR
2:00 P. M.

J. Severy Hibben, M.D., Section Chairman

M 1. Radium Therapy of Toxic Goiter.

S. GINSBERG, M.D.,
Associate Radiotherapist and Adjunct Physician, Cancer Service,
Montefiore Hospital; Radiation Therapist, Beth Israel Hospital
New York.

Discussion: Israel Bram, M.D., Philadelphia;
Harold Swanberg, M.D., Quincy, Ill.; A. F. Tyler, M.D., Omaha.

M 2. A Theory of Photo-Chemical Immunization.

S. PESKIND, M.D.,
Staff, The East 55th Street Hospital
Cleveland.

Discussion: G. H. Warnshuis, M.D., Milwaukee, Wis.; W. C. Dean, M.D., Brooklyn, N. Y.; Victor E. Levine, Ph.D., M.D., Omaha.

M 3. Rational Phototherapy.

FRANK T. WOODBURY, M.D.,
Attending Specialist, U. S. Veteran's Bureau
New York.

Discussion: J. C. Elsom, M.D., Madison, Wis.; F. A. Finn, M.D., Jersey City, N. J.; George W. Maughan, M.D., Ithaca, New York.

M 4. Some Types of Circulatory Stasis; Their Treatment by Physical Measures.

WILLIAM MARTIN, M.D.,
Consulting Electrotherapist, New Jersey State Village for Epileptics, Skillman, N. J.
Atlantic City, N. J.

Discussion: Willard C. Stoner, M.D., Cleveland; N. J. Seybold, M.D., Toledo, Ohio; Luther A. Tarbell, M.D., New Haven, Conn.; Jacob Gutman, M.D., Brooklyn, N. Y.

M 5. Physical Therapy in Hemiplegia.

I. M. LEAVY, M.D.,
Director of Physical Therapy,
Montefiore Hospital
New York.

Discussion: Harry E. Stewart, M.D., New Haven, Conn.; N. H. Polmer, M.D., New Orleans; George F. Zerzan, M.D., Holyrood, Kansas; M. C. L. McGuiness, M.D., New York; Waldemar Fedko, M.D., Gordian, Pa.

M 6. Air Therapy.

WILLIAM T. JOHNSON, M.D.,
Associate Professor of Electrotherapeutics University of Pennsylvania Graduate School of Medicine; Chief of Department of Physical Medicine, University of Pennsylvania Graduate Hospital
Philadelphia.

Discussion: Victor E. Levine, M.D., Omaha; Alexius M. Forster, M.D., Colorado Springs; Benjamin Goldberg, M.D., Chicago.

SECTION ON**Medicine and the Medical Specialties**

WEDNESDAY, SEPTEMBER 7, 1932
NORTH BALL ROOM—2nd FLOOR
2:00 P. M.

Benjamin Goldberg, M.D., Section Chairman

**SYMPOSIUM ON
ELECTROCARDIOGRAPHY****M 7. The Value of the Electrocardiogram in Clinical Diagnosis.**

LOUIS H. SIGLER, M.D.,
Attending Cardiologist and Chief of Cardiac Clinic, Harbor Hospital; Assistant Physician and Cardiologist, Coney Island Hospital
Brooklyn, N. Y.

M 8. Electrocardiography in Cardiac Diagnosis.

ROY F. BASKETT, M.D.,
The J. K. Smith Clinic
Texarkana, Ark., Tex.

M 9. The Electrocardiographic Control of Diathermic Therapy for Angina Pectoris and Coronary Artery Disease.

ALBERT S. HYMAN, M.D.,
Director, Witkin Foundation for the Study and Prevention of Heart Disease, Beth David Hospital
New York.

Discussion: Aaron E. Parsonnet, M.D., Newark; Louis F. Bishop, Sr., M.D., New York; Joseph B. Wolffe, M.D., Philadelphia; Arthur M. Master, M.D., New York; Scott Johnson, M.D., New York; Norman E. Clarke, M.D., Detroit; Louis F. Bishop, Jr., M.D., New York.

M 10. General Principles of Hydrotherapy.

JOSEF NYLIN, M.D.,
Chief of Clinic, Department of Physical Therapy, Hospital of the University of Pennsylvania
Philadelphia.

Discussion: F. H. Ewerhardt, M.D., St. Louis; Wm. Edward Fitch, M.D., French Lick Springs, Ind.; Norman E. Titus, M.D., New York; K. G. Hansson, M.D., New York.

M 11. X-ray Mindedness in Dermatology.

WALTER JAMES HIGHMAN, M.D.,
Attending Dermatologist, Mt. Sinai Hospital
New York.

Discussion: Joseph Jordan Eller, M.D., New York; Russel Fields, M.D., Washington, D. C.; Claude B. Norris, M.D., Youngstown, O.; Henry D. Niles, M.D., New York.

M 12. Physical Therapy an Essential Specialty in Medicine.

J. E. RUETH, M.D.,
Director of Physical Therapy,
Milwaukee County Hospital
Milwaukee, Wis.

Discussion: O. T. Cruikshank, M.D., Pittsburgh; H. Cogan, M.D., Patterson, N. J.; Wm. T. Johnson, M.D., Philadelphia.

SECTION ON**Medicine and the Medical Specialties****THURSDAY, SEPTEMBER 8, 1932****NORTH BALL ROOM—2nd FLOOR****2:00 P. M.**

Heinrich Wolf, M.D., Section Chairman

SYMPOSIUM ON FEVER THERAPY**M 13. Therapeutic Fever Induced by Radiotherapy.**

WILLIAM BIERMAN, M.D.,
Director Departments of Physical Therapy
Beth Israel and Sydenham Hospitals.
New York.

M 14. The Treatment of General Paralysis by Radiotherapy.

LELAND S. HINSIE, M.D., and
J. R. BLALOCK, M.D.,
New York State Psychiatric Institute.
New York.

M 15. Artificial Fever Produced by the Radiotherm and its Therapeutic Application.

CHARLES F. TENNEY, M.D.,
Director of Medicine, Fifth Avenue Hospital.
New York.

M 16. A Study of the Various Agents for the Production of Fever in the Treatment of Paresis.

RALPH H. KUHNS, M.D.,
The Department of Public Welfare,
State Psychopathic Institute.
Elgin, Ill.

M 17. Physiologic Aspects of Fever Treatments in Dementia Paralytica.

C. T. PERKINS, M.D.,
Department of Mental Diseases,
The Commonwealth of Massachusetts.
Worcester, Mass.

M 18. Physical Aspects of Fever Therapy.

A. C. BURTON, Ph.D.,
Department of Vital Economics,
School of Medicine and Dentistry,
Univ. of Rochester.
Rochester, N. Y.

Discussion: S. Parker, M.D., New York;
George S. Fenton, M.D., Ottawa, Ontario; G. W. Robinson, Jr., M.D., Kansas City; John Stanley Coulter, M.D., Chicago; J. W. Schereschewsky, M.D., Boston; Richard Kovacs, M.D., New York; Wm. H. Schmidt, M.D., Philadelphia; F. D. Streeter, M.D., Rochester, N. Y.; Disraeli Kobak, M.D., Chicago.

SECTION ON**Medicine and the Medical Specialties****FRIDAY, SEPTEMBER 9, 1932****NORTH BALL ROOM—2nd FLOOR****1:30 P. M.**

Richard Kovacs, M.D., Section Chairman

SYMPOSIUM ON ARTHRITIS**M 19. Hydrotherapy in Arthritis and Rheumatic Affections.**

JOHN D. CURRENCE, M.D.,
Staff, New York Postgraduate Hospital;
Hospital for Arthritis, Hotel New Yorker.
New York.

M 20. The Treatment of Arthritis.

JOHN STANLEY COULTER, M.D.,
Assistant Professor of Physical Therapy, North-
western University Medical School.
Chicago.

M 21. Diathermy in Relation to Arthritis.

DISRAELI KOBAK, M.D.,
Assistant Professor of Medicine, Rush
Medical College of the University of
Chicago.
Chicago.

M 22. Limitation of Physical Measures in the Treatment of Arthritis.

HEINRICH WOLF, M.D.,
President, New York Physical Therapy
Society; Chief of Department of Physical
Therapy, Mt. Sinai Hospital and Dis-
pensary.
New York.

Discussion: Richard Kovacs, M.D., New York;
F. H. Krusen, M.D., Philadelphia; L. J. Kosminsky, M.D., Texarkana; Earl McBride, M.D., Oklahoma City, Okla.; L. S. Brookhart, M.D., Cleveland; J. C. Elsom, M.D., Madison, Wis.; L. A. Tarbell, M.D., New Haven, Conn.; Samuel Ralph, M.D., Brooklyn, N. Y.

M 23. The Chronic Case from the Standpoint of the Physical Therapist.

CLAUDE L. PAYZANT, M.D.,
Chief of the Department of Physical Ther-
apy, Quincy City Hospital.
Boston.

Discussion: J. E. Rueth, M.D., Milwaukee,
Wis.; Paul Jenny, M.D., Pittsburgh; G. M. Tomlinson, M.D., Philadelphia.

M 24. Juvenile Paresis: Diathermy Hyperpyrexia in a Malaria Resistant Patient. Case Report.

N. H. POLMER, M.D.,
Assistant Professor of Medicine,
(Physical Therapy) Graduate School
of Medicine, Tulane University;
Director, Department of Physical
Therapy, Touro Infirmary.
New Orleans.

SECTION ON**Eye, Ear, Nose and Throat****TUESDAY, SEPTEMBER 6, 1932****PARLORS F AND G—4th FLOOR**

2:00 P. M.

F. L. Wahrer, M.D., Section Chairman

EENT 1. Low Voltage Currents in Ear, Nose and Throat Practice.

GEORGE B. RICE, M.D.,
Consultant, Massachusetts Memorial
Hospital Staff, Audubon Hospital.

Boston.

Discussion: Gordon J. McCurdy, M.D., Providence, R. I.; Charles R. Brooke, M.D., New York.

EENT 2. A Study of the Various Forms of Ultraviolet Irradiation and their Comparative Values in the Treatment of Ophthalmic Diseases.

OSCAR B. NUGENT, M.D.,
Professor of Ophthalmology, Chicago, Eye, Ear, Nose and Throat College and Hospital.

Chicago.

Discussion: Martin Cohen, M.D., New York; William Brown Doherty, M.D., New York; Samuel Moss, M.D., Philadelphia; Raymond J. Sisson, M.D., Detroit, Mich.; Edward G. Lear, New York.

EENT 3. The Use of Radium in Benign Lesions of the Nose and Throat.

G. ALLEN ROBINSON, M.D.,
Director of Radium Therapy, New York Eye and Ear Infirmary; Assistant Surgeon, Manhattan Eye, Ear, Nose and Throat Hospital.

New York.

Discussion: Laura A. Lane, M.D., Minneapolis; Isidore Arons, M.D., New York; C. de S. Pallen, M.D., Rochelle Park, N. J.; Isaac Levin, M.D., New York.

EENT 4. Highlights of Physical Therapy Successfully Used in Ophthalmology and in Oto-Rhino-Laryngology.

SAMUEL MORSE, M.D.,
Assistant Surgeon, New York Eye and Ear Infirmary.

New York.

Discussion: Frederick L. Wahrer, M.D., Marshalltown, Ia.; H. L. Huffington, M.D., Mankato, Minn.; John McCoy, M.D., New York; Sidney L. Olsho, M.D.

EENT 5. Physical Therapy in Selected Cases of Nasal Accessory Sinus Disease.

CHARLES R. BROOKE, M.D.,
Instructor, Surgery, Columbia University, School of Medicine; Chief, Physical Therapy and Occupational Therapy, Veterans' Hospital, New York.

Newark, N. J.

Discussion: M. H. Cottle, M.D., Chicago; H. Hunter Lott, M.D., Philadelphia; George L. Tobey, M.D., Boston.

EENT 6. A Review of Approximately One Hundred Cases of Otitis Media Treated by Zinc Ionization.

GARDNER S. RAYNOLDS, M.D.,
Director, Physical Therapy Department, Henry Ford Hospital.

Detroit, Mich.

Discussion: A. R. Hollender, M.D., Chicago; Carl E. Granberry, M.D., New Orleans; F. B. Blackmar, M.D., Columbus, Ga.; John J. McLaurin, M.D., Dallas.

SECTION ON
Eye, Ear, Nose and Throat**WEDNESDAY, SEPTEMBER 7, 1932****PARLORS F AND G—4th FLOOR**

2:00 P. M.

M. H. Cottle, M.D., Section Chairman

SYMPOSIUM ON TONSIL ELECTROSURGERY**EENT 7. Is Electrosurgery of the Tonsils a Rational Procedure?**

FREDERICK B. BALMER, M.D.,
Department of Otolaryngology, Northwestern University Medical School.

Chicago.

EENT 8. Tonsillectomy by Diathermy.

SAMUEL R. SKILLERN, M.D.,
Associate Professor of Laryngology and Assistant Chief of Clinic, Graduate School of Medicine, University of Pennsylvania.

Philadelphia.

EENT 9. Electrocoagulation Technic for the Removal of Tonsils.

GREGG A. DILLINGER, M.D.,
Staff, St. Francis Hospital.

Pittsburgh.

EENT 10. End Results of Electrocoagulation of Tonsils with a Biactive Electrode.

J. A. HAIMAN, M.D.,
Chief Eye, Ear, Nose and Throat Clinic, Hospital for Joint Diseases.

New York.

EENT 10A. Surgical Diathermy in the Removal of Tonsils.

JEROME F. STRAUSS, M.D.,
Attending Otolaryngologist, Michael Reese Hospital.

Chicago.

EENT 11. Pitfalls in Tonsil Coagulation.

ROY A. BARLOW, M.D.,
Associate Otolaryngologist, Rochester General Hospital; Consulting Otolaryngologist, Iola Tuberculosis Sanitarium.

Rochester, N. Y.

EENT 12 Essential Factors in the Electrosurgical Extirpation of Tonsils.

EDGAR R. MAILLARD, M.D.,
Pathologist, New York State Department of Health.

New York.

Discussion: Edwin A. Griffin, M.D., Brooklyn; A. S. V. Giglio, M.D., Elizabeth, N. J.; Duncan MacPherson, M.D., New York; G. M. Tomlinson, M.D., Philadelphia; W. A. Gross, M.D., Chicago; W. H. Taylor, St. Mary's, Ontario; L. L. Doane, Butler, Pa.

SECTION ON
Eye, Ear, Nose and Throat
THURSDAY, SEPTEMBER 8, 1932
PARLORS F AND G—4th FLOOR
2:00 P. M.

Oscar B. Nugent, M.D., Section Chairman

Guest of Honor:
DR. EDMUND PRINCE FOWLER
 President, The American Laryngological,
 Rhinological and Otological Society.

EENT 13. ADDRESS: The Limitation of Physical Therapy in Otolaryngology.

Discussion: W. W. Morrison, M.D., New York; Roy A. Barlow, M.D., Rochester, N. Y.

EENT 14. Laryngeal Tuberculosis.

EDWARD A. LOOPER, M.D.,
 Professor and Head of Department of Diseases of Nose and Throat, University of Maryland College of Physicians and Surgeons.
 Baltimore.

EENT 15. Comparative Value of Therapeutic Methods in Laryngeal Tuberculosis.

GEORGE E. WILSON, M.D.,
 Attending Otolaryngologist, Saranac Lake General Hospital, National Variety Artists Sanitorium, Northwoods Sanitorium, Stony Wold Sanitorium.

Saranac Lake.

Discussion: M. D. Lederman, M.D., New York; George B. McAuliffe, M.D., New York; M. L. Harris, M.D., Brooklyn, N. Y.; H. H. Lott, M.D., Philadelphia; Joseph W. Miller, M.D., New York; George B. Wood, M.D., Philadelphia.

EENT 16. Ventriculocordectomy; Hemilaryngectomy; with Diathermy Cogau-

M. H. COTTLE, M.D.,
 Attending Otolaryngologist, Lutheran Memorial and Illinois Masonic Hospitals; Assistant Otolaryngologist, Children's Memorial Hospital.

Chicago.

Discussion: Harold Hayes, M.D., New York; D. B. Delavan, M.D., New York.

EENT 17. The Treatment of Malignant Growths of the Oral Cavity.

WILLIAM L. CLARK, M.D.,
 Formerly Director, Clark Hospital.
 Philadelphia.

Discussion: George T. Pack, M.D., New York; Lewis J. Silvers, M.D., New York; J. Thompson Stevens, M.D., Montclair, N. J.; George A. Wyeth, M.D., New York.

EENT 18. Physical Measures in the Management of Atrophic Rhinitis.

JOSEPH S. STOVIN, M.D.,
 Instructor, Rhinolaryngology, New York Polyclinic Medical School and Hospital.
 New York.

Discussion: Alfred Wachsberger, M.D., New York; Bernard E. McGovern, M.D., Philadelphia; J. M. James, M.D., Henning, Ill.; E. L. Lingeman, M.D., Indianapolis.

SECTION ON
Eye, Ear, Nose and Throat

FRIDAY, SEPTEMBER 9, 1932

PARLORS F AND G—4th FLOOR

1:30 P. M.

Charles R. Brooke, M.D., Section Chairman

EENT 19. Diathermy in Otolaryngology.

LEE M. HURD, M.D., and
W. W. MORRISON, M.D.,
 Professor of Laryngology, New York University and Bellevue Hospital and Clinical Professor of Rhinolaryngology, New York Polyclinic Medical School, respectively.

New York.

Discussion: Carl B. Sputh, M.D., Indianapolis; A. R. Hollender, M.D., Chicago; George B. Rice, M.D., Boston.

EENT 20. Electrosurgery in Rhinolaryngology: Indications and End Results.

LEWIS J. SILVERS, M.D.,
 Otolaryngologist, Ocean Hill Memorial Hospital.

New York.

Discussion: Harry A. Schatz, M.D., Philadelphia; Joseph Prenn, M.D., Boston; William L. Clark, M.D., Philadelphia; Gregg A. Dillinger, M.D., Pittsburgh.

EENT 21. Radium Treatment of Lesions About the Head, Face and Neck.

WILLIAM H. KENNEDY, M.D.,
 Assistant Professor of Radiology, Indiana University School of Medicine.

Indianapolis.

Discussion: Harold Swanberg, M.D., Quincy, Ill.; F. W. Stewart, M.D., New York; A. Strauss, M.D., Cleveland; Earl C. Padgett, M.D., Kansas City; S. W. Budd, M.D., Richmond, Va.

EENT 22. Reduction of Turbinal Tissue by Medical Diathermy.

F. L. WAHRER, M.D.,
 Otolaryngologist, Deaconess Hospital, Mercy Hospital, and Iowa Training School for Boys.

Marshalltown, Ia.

Discussion: M. C. Myerson, M.D., New York; Frederick B. Balmer, M.D., Chicago; Henry L. Sinskey, M.D., Baltimore.

EENT 23. Present Status of Ultraviolet Irradiation in Otolaryngologic Therapy.

A. R. HOLLOWELL, M.D.,
 Attending Otolaryngologist, Edgewater, Lutheran Memorial and North Chicago Hospitals.

Chicago.

Discussion: Oscar B. Nugent, M.D., Frank T. Woodbury, M.D., New York; Charles R. Brooke, M.D., Newark, N. J., R. G. Reaves, M.D., Knoxville, Tenn.

PROGRAM OF ANNUAL SESSION

359

EENT 24. Physical Therapy in Diffuse Serous Labyrinthitis.

CARL B. SPUTH, M.D.,
Otolaryngologist, Indianapolis City Hospital, Methodist Hospital and Indiana Christian Hospital.
Indianapolis.

Discussion: George W. MacKenzie, M.D., Philadelphia; D. F. Shields, M.D., New York.

EENT 25. A Physiological Aid to Hearing and its Systematic Re-education.

JOSEPH PRENN, M.D.,
Boston, Mass.

Discussion: M. H. Cottle, M.D., Chicago; Joseph S. Stovin, M.D., New York.

EENT 26. A New Method of Broncho-Clysis.

M. J. MANDELBAUM,
New York.

Discussion: Edward A. Looper, M.D., Baltimore; George E. Wilson, M.D., Saranac Lake, N. Y.

**SECTION ON
Colonic Therapy****FRIDAY, SEPTEMBER 9, 1932****PARLOR C—3rd FLOOR**

9:00 A. M.

Monroe B. Kuntsler, M.D., Section Chairman

CT 1. Demonstration of Technic of Colon Irrigations by Various Methods.

CT 2. Observation with Castor Oil and Its Derivative Sodium Ricinoleate.
CHARLES A. STIMSON,
Eaton Rapids, Mich.

Discussion: N. Philip Norman, M.D., New York; W. B. Wherry, M.D., Cincinnati.

CT 3. Colon Stasis as Related to Arthritis and its Rational Treatment.

R. G. SNYDER, M.D.,
and
C. H. TRAEGER, M.D.,
New York.

Discussion: Harry W. Rothman, M.D., New York; James W. Wiltsie, M.D., Binghamton, N. Y.

CT 4. Colonic Therapy, An Adjunct Therapeutic Agent in Medicine.

HARRY W. ROTHMAN, M.D.,
New York.

Discussion: Louis H. Pinco, M.D., Yonkers, N. Y.; Harvey W. Sigmond, M.D., Crawfordsville, Ind.

CT 5. Colon Infection In Relation to Systemic Disease.

LYNN J. WALKER, M.D.,
Milwaukee, Wis.

Discussion: Jacob Gutman, M.D., Brooklyn, N. Y.

**SECTION ON
Colonic Therapy****FRIDAY, SEPTEMBER 9, 1932****PARLOR C—3rd FLOOR**

1:30 P. M.

James W. Wiltsie, M.D., Section Chairman

CT 6. The Abortive Treatment of Threatened Colon Malignancy.

FREDERICK H. MORSE, M.D.,
Boston, Mass.

Discussion: Max Thorek, M.D., Chicago; Edward H. Trowbridge, M.D., Worcester, Mass.

CT 7. The Biological Consideration of Colon Stasis and Vaccine Therapy.

MONROE BRADFORD KUNTSLER, M.D.,
Assistant, St. Luke's Stom. Clinic,
New York.

Discussion: Ernest C. Fishbaugh, M.D., Los Angeles, Cal.; Charles A. Stimson, Eaton Rapids, Mich.

CT 8. Colonic Therapy: Theory and Practice.

JAMES W. WILTSIE, M.D.,
Binghamton, N. Y.

Discussion: Frederick H. Morse, M.D., Boston, Mass.; Martin J. Synnott, M.D., Montclair, N. J.

CT 9. Intestinal Toxemia: Diagnosis and Treatment.

MARTIN J. SYNNOTT, M.D.,
Director, Medical Service, St. Vincent's Hospital, Montclair; Associate Attending Physician, City Hospital, New York.

Montclair, N. J.
Discussion: O. Clayman Campbell, M.D., Philadelphia, Pa.; Monroe B. Kuntler, M.D., New York.

CT 10. Treatment of Colon Stasis by Means of Electrotherapeutic Modalities.

GEORGE J. OTT, M.D.,
Boston, Mass.

Discussion: F. H. Ewerhardt, M.D., St. Louis, Mo.; Victor E. Levine, Ph.D., M.D., Omaha.

**SECTION ON
Stomatology**

FRIDAY, SEPTEMBER 9, 1932

PARLOR E — 4th FLOOR

9:00 A. M.

Alfred J. Asgis, D.D.S., Chairman

Harry M. Moss, D.D.S., Secretary

ST 1. Physiotherapy — Its Application in Post-operative Surgical Conditions.

LEO WINTER, D.D.S.,
Professor of Oral Surgery, New York University College of Dentistry; Visiting Dental Surgeon in Charge, Bellevue Hospital, New York. New York.

ST 2. Diathermy Treatment of Some Mouth Lesions.

LOUIS V. HAYES, D.D.S.,
Associate Professor of Oral Surgery, New York University College of Dentistry; Associate Visiting Dental Surgeon, New York.

New York.

ST 3. The Application of Ultraviolet in Oral Lesions.

FREDERICK W. LAKE, D.M.D.,
Professor of Dental X-Ray, Tufts College Dental School, Boston, Mass.

Boston, Mass.

ST 4. Physical Methods of Diagnosis and Treatment in the Practice of Stomatology.

ALFRED T. RASMUSSEN, D.D.S.,
St. Francis Hospital, La Crosse, Wis.
La Crosse, Wis.

ST 5. The Advantages of Physical Therapy as an Adjunct in the Treatment of Oral Fractures.

IRVING SALMON, D.D.S.,
Chief, Oral Surgery Clinic, New York University College of Dentistry; Oral Surgeon, Montefiore Hospital, New York.

New York.

ST 6. Ray Therapy of Mouth Tumors.

E. LESTER JONES, D.D.S.,
Stomatologist, Holding Clinic, Memorial Hospital, Albany, N. Y.

Albany, N. Y.

**SECTION ON
Stomatology**

FRIDAY, SEPTEMBER 9, 1932

PARLOR E — 4th FLOOR

1:30 P. M.

ST 7. The Fundamentals of Heliotherapy in Clinical Dentistry.

JOHN F. X. MURPHY, D.D.S.,
St. Vincent's Hospital, New York.
New York.

Discussion: C. Raymond Wells, D.D.S., Chairman, Oral Surgery Section, Second District Den-

tal Society of the State of New York, Brooklyn, N. Y.

ST 8. Ultraviolet Treatment of Oral Abscesses and Periapical Infections.

I. FOLSTEIN, D.D.S.,
New York.

ST 9. Benign Tumors of the Jaws — Etiology, Diagnosis and Treatment.

HERMAN L. REISS, D.D.S.,
Oral Surgeon, Sydenham Hospital, New York.

Discussion: Alonso M. Nodine, D.D.S., Oral Surgeon, Tonsil Hospital, New York.

ST 10. The Preventive and Prophylactic Value of Heliotherapy in Children's Dentistry.

IRENE G. WOODCOCK, D.D.S.,
St. George's Clinic, New York.

Discussion: C. B. Holman, President, American Society of Dental Physical Therapy, St. Louis, Mo.

ST 11. Electrosurgery in the Treatment of Diseases of the Mouth.

ALFRED J. ASGIS, D.D.S.,
Assistant Visiting Dental Surgeon, Bellevue Hospital, New York.
New York.

ST 12. The Stomatologic Case Record in Physical Therapy Practice.

ALFRED J. ASGIS, D.D.S.,
and
E. LESTER JONES, D.D.S.,
Assistant Visiting Dental Surgeon, Bellevue Hospital, New York, and Stomatologist, Holding Clinic, Memorial Hospital, Albany, N. Y., respectively.
Albany, N. Y.

ST 13. The Present Status of Physical Therapy Education in the Dental Schools.

ROBERT J. READE, D.D.S.,
Chairman, Public Dental Health Committee,
Toronto, Can.

HARRY M. MOSS, D.D.S.,
Assistant Professor of Oral Surgery,
New York University College of Dentistry, New York,

and

ALFRED J. ASGIS, D.D.S.,
Chairman of Education Committee.
New York.

FOREIGN CONTRIBUTIONS

Because of the limited output of physical literature in Stomatology in America and the lack of a centralized source of information as to developments in this field in other countries, an invitation has been extended to research workers and clinicians prominent in this field in various European countries to participate in the program. These contributions, it is hoped, will serve as a permanent record of the present status in stomatologic physical therapy in Europe and bring about international exchange of thought.

REPORT OF THE NEW YORK STATE COMMITTEE ON PHYSICAL THERAPY

To the House of Delegates:

Gentlemen:

The work of your committee showed gratifying progress during the year, which is the third of its existence.

County Societies. In accordance with the instruction of the House of Delegates, special efforts were made to stimulate more active interest among the county medical societies. The extended use of physical measures having begun only after the present medical generation received their medical training, post-graduate instruction by papers or lecture courses becomes imperative if physical therapy is to be part of the legitimate practice of medicine. The aim of the committee was to make it possible that there be in every county society at least a few men who are familiar with the possibilities and limitations of physical therapy and who will actively carry on the work or direct its institutional use. Your chairman addressed the secretaries meeting in Albany and ten meetings of county societies.

Questionnaires were sent out to all county societies and the active cooperation of the committee was offered along the line of lectures and organization. The result is shown in the accompanying table.

In 1930 there were committees in 18 counties and papers or lecture courses were given in five; while in 1931 there were committees in 30 counties, and papers or lecture courses given in 11. In 9 counties some interest was expressed, while 5 counties stated that there was not enough interest for active work; and 13 counties made no reply. This summary shows that the efforts of the committee met with satisfactory response in more than half of the 60 counties; and the continuance of the committee's work will insure further active interest and the likelihood of response from the rest of the counties.

The chairmen and members of the Physical Therapy Committees of the counties were regularly invited to the stated meetings of the State Committee which were held at Albany, New York, Syracuse, and Clifton Springs. Whenever possible these meetings were com-

bined with a lecture, in order to stimulate more general interest.

In carrying on its educational work, your committee had the fullest cooperation from the chairman of the Committee on Public Health and Medical Education, and wishes to express its gratitude for his active interest and unfailing courtesy.

Hospitals. Following last year's survey of hospital facilities in physical therapy, your committee again offered its service to the hospitals which recorded their intention to install new departments. Due to the general economic situation, no progress in this direction can be recorded. Your committee urged the chairmen of the Medical Boards of Hospitals possessing physical therapy departments to encourage the presentation of physical therapy cases at staff meetings, in order to stimulate better interest and a more intelligent discussion of the value and limitations of physical measures.

Medical Colleges. The Deans of Medical colleges were again asked for information concerning instruction in physical therapy to graduates and undergraduates. The accompanying table shows very definite progress compared to the table in the annual report of two years ago.

Objectionable Commercial Courses. Additional efforts were made to discourage commercial lectures run by manufacturers and lecturers from outside of the State. In the single instance where such a self-appointed lecturer attempted to run a set of sales talks of his own, the Bureau of Investigation of the American Medical Association furnished helpful information as to the true status of this physician.

Session at the Annual Meeting. As in the previous two years, your committee was entrusted by the Committee on Scientific Work to arrange a program for a half day session on physical therapy at the annual meeting of the State Society. These sessions were well attended and proved valuable in spreading further information about the status of physical therapy among general practitioners. The

committee wishes to thank Dr. A. J. Bedell, chairman of the Committee on Scientific Work, for his interest.

Compensation Work. In order to develop suitable standards for physical therapy in compensation work, your committee conferred with the Committee on Industrial Clinics of the State Department of Labor, the Industrial Commissioner also being present at this meeting. The possibilities of correcting abuses by some low grade industrial clinics were discussed; a minimum standard for physical therapy equipment was proposed and subsequently endorsed by the Executive Committee.

A special course on physical therapy in traumatic conditions was arranged for the Committee on Medical Education in the Counties of New York and Bronx and the cooperation of the insurance carriers enlisted.

Legislation. Another attempt was made this year to introduce legislation to free registered physiotherapists from any medical supervision. The intention of the physiotherapy clause in the Medical Practice Act was to recognize trained technicians to carry out physical therapy under physicians' orders; the licensing of these technicians for independent practice would mean repudiation of the basic principles of the Medical Practice Act. Due to the emphatic protests of the profession, the bill died in committee. It was also contemplated to introduce a bill to license masseurs, colonic irrigators, physiotherapy, x-ray and laboratory technicians, "medical technicians," but with no right to independent practice. Vigorous opposition to this plan was voiced by the competent committees in New York County and as a result the bill was not presented.

With the medical profession now definitely awakened to its responsibilities and rights as to physical therapy, as part of the practice of medicine, and with continued educational work and vigilance by your committees, it is hoped further attempts to destroy the safeguards of the Medical Practice Act to public health will similarly fail.

The chairman is happy to express his appreciation to the members of your committee, Drs. F. E. Elliott of Brooklyn, P. L. Forster of Albany, L. A. Hadley of Syracuse, G. A. Leitner of Piermont, Virginia Tannenbaum

of Buffalo, and G. H. Turrell of Smithtown Branch, for their unfailing interest. He also wishes to voice his gratitude to the staff of the State Society office and to the Legislative Bureau for their painstaking help in many of the technical details of the committee's activities.

Respectfully submitted,

RICHARD KOVACS, *Chairman.*

April 15, 1932.

PHYSICAL THERAPY ACTIVITIES IN NEW YORK COUNTY SOCIETIES

1929-1930-1931

C—Committee Appointed

CA—Committee Appointed and Active

P—Paper or Special Meeting on Physical Therapy

	1929	1930	1931
Albany.....	C-P	C	C
Bronx.....	CA	CA	CA-LC
Broome.....	.....	C	CA-P
Cayuga.....	.....	C-P	C
Chenango.....	.....	.....	P
Clinton.....	.....	.....	P
Columbia.....	LC	.....	.....
Cortland.....	.....	.....	CA
Dutchess-Putnam	P	.....	.....
Erie.....	C	CA-P	C
Essex.....	.....	P	C
Genesee.....	C	C	C
Kings.....	CA-P	CA	CA-P
Montgomery.....	C	.....	C
Nassau.....	C-P	CA-P	CA
New York.....	CA	CA	CA-LC
Niagara.....	.....	.....	C-P
Oneida.....	.....	C	C
Onondaga.....	C	CA	CA-LC
Ontario.....	.....	.....	P
Oswego.....	.....	.....	C
Otsego.....	P	.....	CA
Queens.....	CA-P	CA-P	CA
Richmond.....	.....	.....	CA
Rockland.....	C	.....	C-P
St. Lawrence.....	C	.....	C
Saratoga.....	.....	.....	C-P
Schenectady.....	.....	.....	C
Schoharie.....	.....	C	C-P
Steuben.....	.....	.....	CA
Suffolk.....	C	C	C
Sullivan.....	.....	.....	CA
Ulster.....	.....	CA	CA
Washington.....	LC	.....	C

SURVEY OF PHYSICAL THERAPY INSTRUCTION IN MEDICAL COLLEGES
OF NEW YORK STATE

1931

	UNDERGRADUATE TEACHING	GRADUATE TEACHING	SPECIAL
Columbia University College of Physicians and Surgeons	3rd year students—8 lectures and demonstrations 4th year students—optional clinical work	Under advisement...	3 months' resident service at Presbyterian Hospital
Cornell University Medical College	Casual clinical instruction; therapeutic courses in medi- cine and surgery	None	
New York University University and Bellevue Hospital Medical College	None	None	1 year course for (non- medical) physical thera- pists at Hospital Rup- tured and Crippled in New York
New York Homeopathic Medical College	3rd year students—11 lectures 4th year practical course two mornings a week	None	
Long Island College of Medicine	None	None	
New York Post- Graduate Medical School of Columbia		Casual instruction in courses of ortho- pedic and traumatic surgery	
New York Polyclinic Medical School		2 months' course in theory and practice	2 months' service of in- ternes in physical de- partment
Syracuse University College of Medicine	Senior class in second semes- ter, weekly lecture and demonstrations	Physicians admitted to observe clinical work	
Union University Albany Medical College	Casual instruction in general therapeutic courses and in conjunction with general medicine		
University of Buffalo School of Medicine	All undergraduates receive lectures and demonstrations	Subject included in program of Annual Post - Graduate Course	
University of Rochester School of Medicine	Senior Class—3 hours a week for 4 weeks (Demonstra- tions)	Physicians admitted to observe clinical work.	

Hotel New Yorker Chosen as Convention Headquarters
Sessions September 6-7-8-9 Will Be Held in 2,500 Room Hostelry

The American Congress of Physical Therapy will convene at the New Yorker in New York City. This hotel has been chosen because of its convenient location and its excellent facilities.

The New Yorker is one of the newest hotels in the metropolis, having celebrated its second birthday on January 2nd. It rises 43 stories

skyward, contains 2,500 guest rooms and is Manhattan's largest and tallest hotel. It is conveniently situated at Eighth Avenue and 34th Street, just across the street from the Pennsylvania Station with which it is connected by private tunnel. B. & O. Railroad motor coaches stop at the door. Twenty-six theatres can be easily reached from the New

Yorker in 5 minutes, 53 night clubs are within 5 minutes of the hotel and 8 nearby department stores are just 4 minutes from your room. The famous Empire State Building, the world's tallest structure, is on 34th Street, 3 blocks away.

Each of the 2,500 rooms at the New Yorker, regardless of price, has a Stromberg-Carlson radio with modern loudspeaker giving a choice of four programs; both tub and shower bath, servidor, circulating ice water, full length



Hotel New Yorker

mirror, dresser and reading lamps and other conveniences. Some New Yorker suites have private roof gardens. All bedrooms and parlors are furnished luxuriously with comfortable, modern equipment.

There are four New Yorker restaurants, all cooled by refrigerated air in the summer. The Terrace Room, known in millions of homes throughout the United States through broadcasts over the nation-wide chains of the National Broadcasting Company, is outstanding among dining salons. The service is a la carte except at breakfast, when there are several club meals, and at luncheon when club

luncheons are featured at various prices. World famous orchestras play here nightly for dinner and supper dancing except on Sunday.

The Manhattan Room is a delightfully informal restaurant opening off the main lobby. Here, also, you find that elusive modern note characteristic of the New Yorker. The walls are built of Persian walnut, inlaid with solid bronze, and the windows, facing 34th Street, are notable for the exquisite craftsmanship of their caryed glass.

The Empire Tea Room, just across from the Manhattan Room, is a delightful and charming restaurant serving breakfast, luncheon, dinner and supper. Here there is a soda fountain and here, too, is the New Yorker Candy Shop.

Quick counter service is provided in the Coffee Shop, located in the lower lobby.

Priceless murals, gold-illuminated ceilings, carved glass and inlaid Persian walnut have been deftly adapted for the modern setting of the Grand Ballroom, which can accommodate 1,000. Nearby is the North Ballroom, conveying an atmosphere of formal elegance. This room, too, is decorated essentially in the modern manner. There are numerous other rooms ideally suited for meeting purposes where separate sessions of the Congress can be held. Round table lunches allowing intimate discussion of various problems will be held in the beautiful and imposing private dining rooms.

A feature of the New Yorker which is of special interest to doctors is its private hospital on the fourth floor, the largest and most fully-equipped of its kind today. It is unique in that it offers a hospital service completely devoid of the usual hospital atmosphere. Although many come to the New Yorker for surgery, the physiotherapy and hydrotherapy departments are the most popular.

Arthritis and rheumatic cases are referred from all parts of the country. A roster of the functions of New York's leading hospitals and clinics is maintained in the hospital which visiting physicians find to be of great convenience. Dr. John D. Currence is director of the hospital and its staff is composed of a large group of well known New York physicians.

ARCHIVES of PHYSICAL THERAPY, X-RAY, RADIUM

OFFICIAL PUBLICATION AMERICAN CONGRESS OF PHYSICAL THERAPY

Editor: DISRAELI KOBAK, M.D., CHICAGO

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EDITORIALS

D'ARSONVAL BANQUET TO HONOR AMERICAN CONGRESS VISITORS TO FRANCE

That the French Government is wholeheartedly in back of the project of the contemplated excursion of American physicians this summer to the various physical therapy centers in France, is demonstrated by the following telegram recently received from Paris by the chairman of arrangements, Dr. Norman E. Titus, from Paris. The cablegram is under the signature of the New York French consulate representative, Monsieur Ornano. This communication, roughly translated states that a special banquet will be given to the visiting physicians at which Professor d'Arsonval will preside. The splendid reception which is being prepared for them is under the wing of official authority and will be representative both in quality and quantity. (*D'Arsonval presidera banquet Paris Stop Autorites officielles preparent splendides receptions esper-*

ons groupe importante qualite et quantite — Ornano.)

The reader's attention is especially directed to the foregoing tour under the wing of official France and guidance of Titus. The prospectus mailed to various members of the American Congress of Physical Therapy describes the low cost of this trip, the places to be visited and the nature of transportation. As regards the interesting features of the trip we quote the above mentioned prospectus in part:

"This trip includes all transportation and entertainment from the time the participants leave New York until their return. All sightseeing trips in Paris and a special trip to the battlefields, as well as other trips to places of historical interest around the city of Paris, are included. Moreover, all meals, hotel accommodations, wines and tips are provided.

"Sailing on the famous new steamer of the French Line, the S. S. "Lafayette," on August 6th, the party will arrive in Le Havre on August 13th. A special private train will be provided to transport the entire party to Paris. In Paris the entire party will be accommodated in rooms with baths at the

Hotel Continental, which is opposite the famous Tuileries Gardens, across which one can see the Palace of Louvre.

"An entire week will be spent in Paris, where sightseeing trips will be conducted, including, as mentioned, a trip to the battlefields. Entertainment will be provided, including a special banquet to Professor d'Arsonval, who is the "father of modern electrotherapy." This will also be attended by other well-known French scientists who are interested in the field of physical therapy. Interrupting the stay in Paris there will be a trip on a special train to Vichy, where the entire party will again be accommodated in one of the first-class hotels. While in Vichy special opportunities will be afforded the party to see all the phases of the life at this well-known Cure. Demonstrations and lectures on medical treatments will be given and there will also be an official banquet tended by the city and a party at the Opera. Those who desire to play golf will have an opportunity to get some exercise while spending the three days in Vichy and the ladies of the party will have a chance to visit the branches of the famous Parisian shops."

This is an opportunity long sought and seldom consummated by individual excursionists. It will afford a post-graduate survey of what our French colleagues are doing and thinking in physical therapy — all this under intelligent direction and pleasantest circumstances. Thus the tour will combine educational and recreational facilities, for it will also include visits to the consecrated places, such as battlefields, the tomb of Napoleon and the unknown soldier, and other places of historical value. We urge all those anticipating or contemplating this trip to register early for reservation, since the tour is restricted to a definite small number.

SPECIAL POST-GRADUATE INSTRUCTION AT COLUMBIA UNIVERSITY

A communication of interest to all practitioners seeking post-graduate experience in Physical Therapy has come to hand and contains the interesting information that a special course in all branches of this discipline will be offered for the benefit of qualified physicians in medicine by Columbia University, under the direction of Dr. Norman E. Titus and his associates. Orthodox Physical Therapy recognizes the value of such organized and scientifically directed instruction and appreciates the progressive leadership of the above mentioned university in encouraging scientific instruction and practice. The attitude of Columbia is a generous index of the broad tol-

erance, vision and foresight on the part of its Administration Board of Post-Graduate Studies in Medicine. It has announced its purposes with that quiet dignity which is the aura of scholastic background. There was in this statement no fanfare of trumpets, no hint of jazzy publicity, no discordant notes suggesting the muckery of commercialism.

This invitation is welcomed by scientific physical therapy because it senses the opportunity offered to organized medicine for its individuals to develop a well-balanced appreciation of its therapeutic possibilities, and this under the guidance of oriented and conservative instructors recognized as leaders in this discipline. Titus and his associates are to be complimented on their convincing collaboration and, undoubtedly, the recognition accorded to Physical Therapy in this instance is the culmination of their continuous demonstrations of the value of physical therapy in the broad field of medicine. In urging all to make provisions to matriculate in this post-graduate instruction it would, perhaps, not be amiss to append the major part of the communication for the perusal of the interested reader. It states:

Following the meeting of the American Congress of Physical Therapy at the Hotel New Yorker, New York City, September 6-7-8-9, a three-weeks' course in the theory and practice of physical therapy will be given for qualified graduates in medicine by the College of Physicians and Surgeons, Columbia University.

Purpose: To acquaint the doctor with the proper use of physical therapy agents in the treatment of disease; the use of light, electricity, exercises, hydrotherapy, and massage.

Instructors: Qualified teachers of physical therapy who are on the medical faculty and in charge of the physical therapy departments in several New York hospitals.

When given: Beginning Monday, September 12th and ending Saturday, October 1st. Daily, 9-5 (Saturdays, 9-12).

Division of time: First week, lectures and demonstration of apparatus; second week, clinical demonstrations; third week, supervised clinical practice by the members of the course.

Where given: Lectures — College of Physicians and Surgeons. Clinical work — Vanderbilt Clinic and Presbyterian Hospital (where during 1931 over 133,000 treatments were carried out), and in the physical therapy departments of Reconstruction, Beth Israel, Fifth Avenue, and Beekman Street hospitals.

Fee: \$100. Class limited to twelve.

We shall be glad to send you more complete information regarding the course.

CORRESPONDENCE

Further Comments on Amalgamation

May 18, 1932.

Dr. Disraeli Kobak,
30 N. Michigan Ave.,
Chicago.

Dear Kobak:

Your editorial, "Unity, Peace and Concord," in the April number of ARCHIVES hits the proverbial nail on the head. In this connection you may recall my unsuccessful effort in this direction made at Indianapolis three years ago.

Passionate jealousy prevented the consummation of amalgamation of the three outstanding physical therapy societies, two of which I took part in their organization, and for twenty years a member of the third.

In 1929 prosperity was at high tide and passion ruled the world. Now, at low tide we are looking about for a life saver.

The condition of my health will not permit me to attend the meeting in New York.

That the Congress and the American Association will find a basis for mutual agreement on amalgamation is "devoutly to be wished."

Sincerely,

BURTON BAKER GROVER.

BBG/A

May 23, 1932.

Burton Baker Grover, M.D.,
20 North Tejon Street,
Colorado Springs, Colorado.

Dear Dr. Grover:

The Editorial, *Unity, Peace and Concord* was written in the desire to place the problem in the open regarding the feasibility of amalgamating the two leading societies in Physical Therapy in America. In the past year this sentiment has developed to the point that I have personally received many communications in which the foregoing project was suggested by practically all writers. Leaders in organized medicine as well as those in our specialty have often pointed out and advised this step as a solution to the incongruous dilemma wherein two bodies were attempting to occupy the same space at the same time. The consistency with which this sentiment was constantly stressed impressed it upon me that public opinion favored such a unification in our bodies. Yet, I probably would not have ventured to come out into print with opinions such as I expressed in the editorial in question had it not been for the open letter by Kovacs and the preceding correspondence from Titus and Stewart which urged practical action rather than sentimental speculation.

My hesitancy in the matter was whipped into action by Hollender, who, acquainted with the situation, argued that action was here more potent than diplomatic exchanges. He wrote to Kime and Willmoth, present and past presidents of the American Physical Therapy Association, and to Pope, a past president of both organizations, as well as an active trustee of the American Association, and suggested a conference of representative members from each group to discuss the problem. Kime's reply favored this plan and at his suggestion the time and place was set for this meeting in Louisville, rather than at Chicago, for the convenience of Pope, then in poor health. All of this was done with the knowledge and approval of the officers of the American Congress, Ewerhardt, our president, Fouts, our past president, and Hollender all who officially represent the Congress. At the last moment the unexpected happened in the form of a letter from Kime explaining the undesirability of such a meeting at that time. Hollender's disappointment was keen because the whole project from our side was based on altruistic motives. He felt that the Congress was let down with a dull thud. In spite of disappointments his reply to Kime left a door open for further exchange of opinions, a fact that has not been taken advantage of by the officials of the American Association.

Rather than let the issue die an inevitable death because of inaction, I took the bull by the horns and placed the problem in the open. The sentiment that is crystallizing for the combining of both societies is now before the public and I trust it will ferment into something tangible, of benefit for the future of Physical Therapy. I want you to believe that I was in sympathy with your motives when you proposed similar plans in Indianapolis. Unfortunately, at that time there was fear that the autocracy which apparently governed the American Association would swallow the individuality of the American Congress and remove the influence that it had already created in contemporary medicine in America. There was no jealousy but perhaps distrust because of this. Our growth has been phenomenal in the vigor of its scientific propaganda and it was felt that a situation then would perhaps arise where taxation would be greater than representation. There is not and never was any hostility, and if any bitterness or resentment ever grew out of that memorable conference it was not in our ranks.

The recent conference to which we invited the American Association to participate in, did not grow out of any desperate situation in our ranks. Please, Oh, please! take my word for that. Things are brighter and better for the American Congress than at any time in the past several years. Our JOURNAL is now on a paying basis and is undoubtedly a dignified organ for dissemination of scientific

literature. Indeed, so many complimentary things are said about it that we are ready to believe that we are doing the work at least in a satisfactory manner. I am happy to confess that the work is a labor of love, and the greatest compensation that I treasure is the thought that we are making scientific tradition for Physical Therapy in America. Outside of that my honorarium is indeed on the red side of the ledger. But I am content so long as you and other sincere students give their approval.

A steady influx of new members is constantly coming into the Congress. That is a significant fact that we are again facing a prosperous era. There is greater strength in our ranks and hence assurance that our future is not bleak and uncertain. We have good reasons to feel optimistic. The forthcoming meeting in New York is an assured success even at this distant time. It will undoubtedly make history because of the extraordinary scientific program. I could wax enthusiastic on this phase of the subject. Truly, we are doing things and raising the standard of Physical Therapy. Moreover, in spite of universal depression, the financial side of the meeting is also well underwritten. I trust you will excuse me for my unconscious bragging, when I say that never has there been a meeting in New York with such cooperation from dignified and orthodox sources. Only your presence as an honored guest would round out the picture.

Since the foregoing description is the status of the American Congress of Physical Therapy (optimistic and sincerely believing in its future), it certainly is plausible to believe that our sympathy for amalgamation does not arise from a sense of fear of failure, bankruptcy and hopeless despondency. It was in the desire to offer aid and knit together the torn ranks in Physical Therapy in

America and thereby leave to future generations and posterity the example of unselfish labor and self-sacrifice that has motivated our call for a united front: for "Peace, Unity, and Concord". The Congress seeks no favor and is in need of no aid, but it sincerely wishes to aid and favor a movement that will reflect greatest credit to our discipline.

Both societies have things in common: their work and ambitions for a more universal appreciation of scientific physical therapy runs parallel, even to the point of geographical propinquity. The twain, East and West, can and must meet on the ground of mutual understanding; otherwise, nature's selective process will weed out the incompetent and the useless, and modify the situation on its own ruthless terms. Let it not be said afterwards that we were blind to the insistent knocking of Opportunity. It is highly practical that the traditions of the American Association should be incorporated with the more virile organization of the American Congress. The transfusion will be wholly beneficial to physical therapy throughout the scientific world of medicine.

As I dwell on this thought there hovers before me the sad consequences of "Pride that goeth before a fall" and the spectacle of "Whom the gods would destroy they first make mad". I pin my faith on the trinity of tolerance, open mindedness, and mutual cooperation as the means by which the success of this proposition will best be consummated. I pray for the leadership that is able to show more backbone than wishbone to bring about the unity, peace and concord in the ranks of organized Physical Therapy in America.

Yours faithfully,

DISRAELI KOBAK, M.D.

COMMERCIAL EXHIBITORS

who have made reservations for space at

THE ELEVENTH ANNUAL SESSION
American Congress of Physical Therapy

September 6, 7, 8, 9, 1932

Hotel New Yorker

New York

Adlanco Industrial Products Corporation.
Boston Medical Engineers.
The Burdick Corporation.
Cameron Surgical Specialty Company.
Comprex Oscillator Corporation.
Electro Therapy Products Corp., Ltd.
H. G. Fischer & Co., Inc.
General Electric X-Ray Corp.
Hanovia Chemical & Mfg. Co.

High Tension Corp.
Kalak Water Co. of N. Y.
The Kelly-Koett Mfg. Co., Inc.
Lasker Medical Specialties Corp.
Lepel High Frequency Lab., Inc.
Peerless Medical Equipment Corp.
Sanitax Electric Co.
Schellberg Mfg. Corp.
Westinghouse X-Ray Co., Inc.

CURRENT NEWS AND SCIENCE

New York State Medical Society Session on Physical Therapy

Chairman, Richard Kovacs, M.D., New York City. Wednesday, May 25th, at 9:00 A. M. Place of meeting, Room 1806, Hotel Statler.

1. "Physical Therapy in Gynecological Office Practice," Virginia Tannenbaum, M.D., Buffalo.
2. "Artificial Hyperthermia by High Frequency Currents," Charles Carpenter, Ph.D., by invitation, Rochester.
3. "Painful Shoulder," Charlton Wallace, M.D., New York City.
4. "Artificial Light in Tuberculosis," George C. Martin, M.D., Buffalo.

The Pacific Physical Therapy Association

At the May 25th meeting of the Pacific Physical Therapy Association the following interesting papers were presented:

1. "Thoughts on Physical Therapy," M. W. Kapp, M.D., San Jose, Calif. (Read by proxy.)
2. "Basic Principles of Muscle Training," William W. Worster, A.M., M.D., Associate Professor of Therapeutics, College of Medical Evangelists, Loma Linda, Calif.
3. "Ultraviolet in the Treatment of Vincent's Angina," Prevention, Recognition and Treatment, Charles B. Hawks, D.D.S., Los Angeles.

The 1932 Graduate Fortnight of The New York Academy of Medicine

Tumors, benign and malignant, will be the theme of the 1932 Graduate Fortnight of The New York Academy of Medicine. The medical profession of the country is invited to participate in the intensive two week study of this important medical and surgical subject.

A full program of clinical demonstrations, lectures and conferences has been arranged to cover all phases of tumors, their diagnoses and treatment.

Concurrent with the Fortnight, and for an

added week thereafter, there will be housed in the Academy building an exhibition of anatomical specimens numbering approximately 3,000 units. A number of the sections in the exhibition will be subjected to lecture demonstrations at regular intervals.

Ten evening meetings have been arranged during which tumor growths in various parts of the human anatomy will be discussed. Among the speakers are included Drs. W. Gordon M. Byers, Edwin Beer, Charles A. Elsberg, James Ewing, Donald C. Balfour, Daniel F. Jones, Dean Lewis and Francis Carter Wood, and others.

Thirty afternoon clinical meetings and demonstrations have been arranged in eighteen of New York's leading hospitals, including Bellevue, Lenox Hill, Presbyterian, St. Luke's, Fifth Avenue, Post-Graduate, Neurological Institute and others.

The Fortnight will be held from October 17th to the 28th, inclusive.

The profession of the country is invited to attend and to participate in the Graduate Fortnight. There is no charge for attendance at any of the clinics or meetings, but registration is required for participation in the hospital demonstration clinics.

A complete program and registration blank for the clinics and demonstrations may be secured by addressing The New York Academy of Medicine, 2 East 103rd Street, New York City.

National Tuberculosis Association Meeting

The 28th annual meeting of the National Tuberculosis Association will be held in Colorado Springs, June 6 to 9. Already, arrangements have been made for the meeting to be held at the Antler's Hotel, and the program, as it is sketched in the January issue of the Bulletin of the National Tuberculosis Association, will be a most stimulating one.

There will be section meetings, wide in their interests. The pathological section, with Dr. David T. Smith, will conduct a special session with a symposium on the "Bacteriology of the Tubercle Bacillus," as one of its most inter-

esting sessions. They will also hold a joint session with the clinical section, whose chairman is to be Dr. James J. Waring, on the subject of "The Blood Cell Count in the Diagnosis of Active Tuberculosis." The sociological section, under the chairmanship of Dr. J. L. Pomeroy, will have a symposium on the "Racial Aspect of the Tuberculosis Problem," with the special interest of statistics and the presence of the representative of the Indian Service. Also a symposium on the general subject, "The Child's Bill of Rights in Relation to Tuberculosis."

Before this regular Association Meeting begins, there is to be a meeting on June 6, in Denver, of the American Sanatorium Association, with scientific papers in the morning, and the opportunity of visiting the sanatoria in the afternoon. At the same time there will be morning and afternoon sessions of the National Conference of Tuberculosis Secretaries in Colorado Springs.

Prominent speakers of these sessions include the following: From California, Doctors Emile Bogen, W. P. Shepard, Herbert F. True, Fred T. Foard, J. L. Pomeroy, Anna E. Rude, K. F. Meyer, John J. Sippy, Thomas A. Storey, Louis Olsen, Frank L. Kelly, E. C. Dickson, G. C. Geiger, Giles S. Porter, C. W. Decker, Robert T. Legge, Benjamin B. Black, Professor Mary B. Eyre, Miss Sidney Maguire, W. F. Higby, Mrs. Helen Halvorsen; from Oregon, Doctors Ray W. Matson, Frederick D. Stricker, Professor Clair V. Langton, Mrs. Saidie Orr Dunbar, Miss Elnora Thomson; from Utah, Doctors L. L. Daines, T. B. Beatty, W. W. Christopherson; from Washington, Doctors E. T. Hanley (President of the Western Branch A. P. H. A.), A. E. Stuht, Lloyd Moffitt, Professor John Weinzirl.

Demonstrations in Physical Therapy

The Medical Society of the State of New York, through its committee on public health and medical education, sponsored a series of conferences and demonstrations on physical therapy in traumatic conditions for members of medical societies of New York and Bronx counties at the New York Academy of Medicine during February. Physicians in charge were Drs. William V. Healey, "Indications and Contraindications"; Heinrich F. Wolf, "Uses and Technic of Superficial Health Measures"; William Bierman, "Uses and

Technic of Diathermy"; Kristian G. Hansson, "Uses and Technic of Massage and Therapeutics"; Richard Kovacs, "Electrodiagnosis: Galvanic and Low Frequency Currents," and Herman L. Reis, "The Compensation Viewpoint."

A Model Radiologic Service in Paris

At the Hôpital St. Louis, a large radiologic service has been created that embodies all modern improvements imaginable. The minister of public health attended in person the opening of the new service. The institute was erected through the initiative of Dr. Belot, director of the service, who supervised himself all the details of the construction. A thick wall sheathed with sheets of lead insulates completely the roentgen apparatus from the booth occupied by the patients and the operators. The operators control the apparatus from a distance. The floor is entirely insulated by a thick layer of rubber. In addition to numerous dressing rooms for the patients, there are three rooms for radiologic diagnosis. The physician dictates his observations to secretaries, seated in an adjoining room, by means of a microphone and loud-speaker. The roentgenologist is enclosed in a special booth that assures him absolute protection. A powerful generator enables the operator to make roentgenograms of the lung at the rate of one every 2/100 second. Dummy lifts are used to transfer the plates at once to the laboratories on the ground floor, where they are immediately developed and then placed in an electric drier. The radiotherapeutic service comprises ten rooms. The patients are enclosed in a booth and the nurses control the apparatus from without, while they supervise the patient through a small window in the wall. There are two sets of equipment for superficial roentgenotherapy, an apparatus for moderately penetrative roentgenotherapy, and three sets of equipment for high voltage roentgenotherapy with 250 kilowatts. The generators are coils with a constant tension of 30 milliamperes. The Coolidge tubes, standard type, are enclosed in opaque containers. In other rooms are the various types of apparatus for physical therapy: mercury lamps, diathermic devices, arc lamps, and the like; the filing cabinets; in addition, there are assembly and recreation rooms. Foreign physicians who visited the institute at the time of holding of the International Radiologic Con-

gress stated that nowhere else is there an institute so complete and so modern. From the standpoint of capacity, 10,000 patients a year can be given diagnostic examinations and 30,000 patients can receive widely divergent forms of treatment each year.—*Abs. Jr. A. M. A.*, March 5, 1932.

Report of Radiotherapeutic Institute

In the annual report for 1930, issued by the Radiotherapeutic Institute of Rotterdam, the medical director gives a detailed account of the method of treatment in cancer of the uterus. From his study on the combined treatment with surgery and radiology, he reached the following conclusions: 1. The value of prophylactic irradiation in its present form is as yet uncertain. Consequently, one has not the right to make an absolute demand for the application of this method. That can be done only when an increasing number of patients treated in that manner shall show that this treatment improves the state of health. 2. Preliminary surgical treatment, by means of electrocoagulation, encounters the same objections. In the case of conditions fairly well advanced, it may aid the radiologic treatment. When the development of the tumor is still in the beginning stage, it can be replaced by the application of radium needles. 3. The radical operation, following the preliminary ray treatment, is advisable in all cases in which the period of the first onset has passed; also in the grave cases when, of course, the ray treatment has improved the condition temporarily and has thus prepared the way for the operation. The radical operation is to be recommended likewise when the preliminary treatment with rays appears to have affected the clinical cure. The cure may, however, be only apparent; for the cancer cells that have escaped the fatal action of the rays may at any moment provoke a recurrence. At the institute, 239 patients affected with cancerous tumors have been treated, and in 121 a satisfactory result was achieved, while in 69 no results were obtained.

Dr. Thorek Medalled

In recognition of 25 years of service and benevolence to Chicago Italians, Dr. Max Thorek, head of the American hospital, has

been honored by King Victor Emanuel III. He has been made a Chevalier of the Crown of Italy.

Dr. Thorek is best known to the theatrical world for his efforts in behalf of performers and his many years aid to the National Vaudeville Association.

Dr. Thorek is an active member of the American Congress of Physical Therapy. He has contributed very richly to contemporary medical literature and is a surgeon of international reputation. His recent book, "Surgical Errors and Safeguards," is an index to his literary industry and to his surgical skill. His avocation is music, the fine arts, and he is particularly renowned the world over for his extraordinary work in photography. His energy is just tre-men-dous! The Congress adds its congratulations in honor of this event.

Northwestern University Medical School Announces Course in Fever Therapy

A course of instruction in the technic of sustained hyperthermia (therapeutic fever) by diathermy will be offered of two weeks duration.

Course is limited to six students who must be graduate nurses.

Students may stay on an additional week for further practice at no additional tuition. The first course begins March 15th. Applications should be sent to Dr. John S. Coulter, Director Department of Physical Medicine, Northwestern University Medical School, Chicago.

Gland Extract May Be Essential to All Tissues

The extract of the adrenal cortex glands may be a hormone necessary for the proper functioning of all the tissues of the body, Prof. Frank A. Hartman of the University of Buffalo has announced to the American Association for the Advancement of Science.

This extract, called cortin by Prof. Hartman, has been used in the past to rescue from the brink of the grave, sufferers from Addison's disease. Now Prof. Hartman has evidence that cortin is resistant to disease toxins and necessary to normal growth, kidney functions and other bodily mechanisms.—*Science News Letter*, January 9, 1932.

THE STUDENT'S LIBRARY

HYDROTHERAPY AND PHYSIOTHERAPY.
For Bath Attendants, Nurses and Biophysical Assistants. By *Lionel C. E. Calthrop*, M.B., Durh., M.R.C.S. Eng., L.R.C.P. Lond. Consulting Physician, Harrogate Royal Bath Hospital; Ex-President, Balneological Section, Royal Society of Medicine; late Medical Superintendent, Woodhall Spa Baths. Cloth. Pp. 172. Price 5/-net. London: William Heinemann (Medical Books) Ltd, 1931.

The contents of this book are based upon lectures which the author gave in the School of Instruction for Bath Attendants at the Royal Baths of Harrogate during the years 1920 to 1930. It is of necessity, therefore, elementary in character. The details of technic are purposely emphasized because the assistant's point of view is obviously different from that of the prescribing physician. The assistant must have a thorough knowledge of methods. This information cannot always be found in the usual texts. In a special little volume like this much has been included, the author assuming, of course, that the student has previously studied the anatomy and physiology of the human body and has acquired some knowledge of the principal diseases for which this kind of treatment is prescribed.

Part I, which includes six chapters, is given over to hydrology; Part II, of three chapters, is devoted to physical therapy. The electrotherapeutic agencies are described, their indications for use stated, and the necessary precautions emphasized. This section is very brief, but sufficiently informative for those for whom it is intended. Of particular interest is the scheme of describing methods of treatment.

It is quite obvious that the primary object of this work is to emphasize hydrology. Physical means of treatment are included because the author believes that the assistant in hydrology should have some knowledge of them.

The book is well written, although at least to the reviewer, incoherent in places. There is nothing especially new either on hydrology or physiotherapy, although many new advances have been reported in the medical literature during the past few years.

ANNALS OF ROENTGENOLGY. A Series of Monographic Atlases: Volume XIII: GYNECOLOGICAL ROENTGENOLOGY. By *Julius Jarcho*, M.D., F.A.C.S., Attending Gynecologist and Obstetrician, Sydenham Hospital, New York. Cloth. Pp. 571, with 5 colored plates and 273 illustrations. Price, \$20.00. New York: Paul Hoeber, Inc. 1931.

This monograph contains one of the most complete discussions on the subject, one dealing with the visualization of the pelvic organs, the diagnostics and therapeutics of tubal insufflation. Critical comment on this excellent contribution can only elicit highest praise for the author's monumental effort in producing this outstanding work.

It belongs to the series of Monographic Atlases, Annals of Roentgenology, edited by the scholarly Joseph T. Case. The author introduces the subject by reviewing the topographical anatomy of the female genitalia and then discusses in separate chapters, "The Use of General Roentgenological Methods in Gynecology," which includes a general historical review of the methods of x-ray visualization of the pelvic organs in gynecology and obstetrics. The basis of this work is formed upon a detailed evaluation of the effects of pneumoperitoneum—transabdominal or peruterine—with or without combined uterosalpingography, and tubal insufflation. These methods have both a diagnostic and therapeutic value. The author gives due credit to others who have contributed to this field of gynecology without trying to judge their claims as to priority. The methods of other contributors are described, and indications and contraindications are fully discussed. Chapter seven discusses uterosalpingography in minutest detail, and emphasizes its equipment, technic, general methods, and precautions. In chapters that follow, the author describes his own methods of uterosalpingography and its combination with pneumoperitoneum. All features allied to this field are included, even a chapter on radiation therapy in gynecology, which included both radium and x-ray. A most complete bibliography is appended to the text which bears testimony to the exhaustive labor and industry on the part of the author.

In these days of economic depression the high cost of this work may act as a deterring factor in the wider distribution of this excellent contribution. This is to be regretted. The physical makeup of the book is a splendid example of what single mindedness of purposes on the part of publishers may accomplish in spite of unusual monetary outlay. The house of Hoeber is to be highly commended in this respect. In spite of the higher price of the volume it is worth all and probably more than is asked. The author has contributed undoubtedly the most scholarly exposition to this phase of gynecologic study. The book is highly recommended to all advance students of that specialty as an authoritative reference and text.

ONE HOUR OF MEDICAL HISTORY. Compiled by *Benjamin Spector*, M.D. Paper. 88 Pp. Price by mail \$1.00. Boston: The Beacon Press, Inc. 1931.

The main purpose of presenting medical history in this form to the medical student is to permit him to obtain quick familiarity with the subject without extensive reading. The necessity of the modern doctor knowing something about the historic figures in medicine is thoroughly appreciated today. Whether it improves his education or influences his

culture, the medical student of today must interest himself in medical history.

Dr. Stearn's comment in the foreword is testimonial to the fact that the present little volume has merit. He states: "The method devised by Dr. Spector and so ably presented through the medical pageant given by the undergraduates during the past year does more, in my opinion, to fulfill the requirements of a medical school in this field than any other which has come to my attention. It has been a powerful factor in establishing more intimate relations between the faculty and the students, and has been of equal benefit to both groups."

The reader should be aware of the fact that the work is deliberately informal. Its value lies in this very fact. While not complete in its descriptive matter, it is as the author says, "Provocative rather than satisfying, both to the student and to the audience."

This little volume should prove of exceptional value to those whose time and inclinations prevent detailed reading of medical history.

TUBERCULOSIS. Its Cause, Prevention and Care. By Frank H. Livingston. Cloth. Pp. 191. Price, \$2.50. New York: The Macmillan Company. 1930.

The author, a lay individual, at the age of 50 pauses in retrospect to give his experience in 26 years of personal combat with tuberculosis. He has, in his wanderings to attain health, gathered many diverse opinions concerning the care of the tuberculous and has learned to catalogue this knowledge in systematic fashion. A lay individual should not be considered the proper source for medical information, especially in so serious and difficult a problem as presented by tuberculosis, but Mr. Livingston's writings have an interesting personal touch and may be read by others in the big family of the tuberculous with some interest and profit. The book's greatest value is in the fact that it presents the lay person's opinion regarding this protean affection. It is written in a coherent manner.

PRIMARY CARCINOMA OF THE LUNG. BRONCHIOGENIC CANCER. A Clinical and Pathological Study. By B. M. Fried, M.D., Peter Bent Brigham Hospital, Boston, Mass. Cloth. Price \$5.00. Pp. 247, with 95 illustrations. Baltimore: The Williams and Wilkins Co., 1932.

The incidence of the recognition of primary carcinoma of the lung has increased so markedly in the past twenty years that this condition has assumed a foremost position among malignant neoplasms. A most thorough and detailed study of this disease is given by the author in this small volume. The facts are presented in a very lucid manner, systematically outlined. He discusses from a pathological standpoint, incidence, etiology, histogenesis, classification, metastases and duration. In the clinical portion, diagnosis, the history, clinical findings, laboratory methods of investigation are most thoroughly covered and amplified by a con-

siderable section of illustrative case reports. Under etiology, discussion brings out the rôle of bacteria and parasites, particularly influenza, in the causation of bronchiogenic cancer. The antigenesis in the presence of active tuberculosis is noted and the effects of tar inhalation cited. In the diagnosis, case histories—illustrative of the important criteria—are clearly expounded. The laboratory methods feature the importance of sputum and pleural exudate examinations for neoplastic cells and of bronchoscopic and roentgen examinations. The illustrations, especially the micro photographs, are splendid and very impressive. A very complete bibliography is also appended. The beautiful book-work of the publisher is deserving of very great credit. This monograph is heartily recommended to every practitioner.

THE THYROID AND MANGANESE TREATMENT. ITS HISTORY, PROGRESS AND POSSIBILITIES. By Herbert W. Nott, M.R.C.S., L.R.C.P. Pp. 265. Cloth. Price, \$3.00. London: William Heinemann (Medical Books) Ltd. 1931.

The present volume is an informal account of the author's clinical investigations and experiences with the application of manganese and thyroid as "a method of systemic detoxication in the control and prevention of disease." It is an abbreviated record of its historical development, progress and possibilities. The first of these studies was reported to the medical profession in the *British Medical Journal*, in 1925, under the title of "The Thyroid and Manganese Treatment in Various Diseases" and was followed by subsequent papers which dealt with its influence on abnormal blood pressures, its influence on acute pneumonia, its possible mode of action, and its application to many other intractable maladies.

The book is divided into three sections, together with an appendix which contains the previous published works of the author on this particular subject. These papers form the nucleus of the author's thesis. The recitation of its development makes up, as it were, the interstitial or connecting link between practice and theory, a desirable accompaniment to the therapeutic innovation introduced by the writer. The mode of action of this treatment is postulated on a possible oxidation effect on the blood tissue. According to Nott, "Some believe that progress in many of the sciences partly comes through alternating setting up and demolishing theories, and that to avoid stagnation no one need hesitate to formulate theories or oppose existing ones; if this is done from conscientious motives. But in matters concerning life and health, physicians are agreed that when theories are propounded, proof of an acceptable kind should, if possible, accompany them. In the absence of laboratory proof, therefore, it was with some misgiving the writer suggested this treatment's possible mode of action might be due to its activating oxidation processes in the blood and tissue of the organism. It was a serious conclusion to draw from deductive and analytical methods alone."

Whatever the theory in back of the effects demonstrated by the author, the reading of the historical

development and the striking clinical results obtained from thyroid and manganese therapy will be found to be of extreme interest. According to the data presented in these pages its possibilities reach into so many heretofore discouraging affections associated with chronic intoxications and infections as to warrant its adoption and closer study. The value of this treatment is particularly directed to those specializing in chronic diseases; and since the physical therapist is probably more often in contact with chronic pathologies than any other group of medical men, the incorporation of the thyroid-manganese treatment as an adjuvant method of detoxication opens up a new avenue to overcome this residual state. The subject has been presented in such an interesting and delightful style that one closes the book with a conviction of the unfailing possibilities of the treatment. This book should be read by every progressive physician because of its far-reaching possibilities as a method of systemic detoxication in the control and prevention of disease.

THE PRACTICAL MEDICINE SERIES COMPRISING EIGHT VOLUMES ON THE YEAR'S PROGRESS IN MEDICINE AND SURGERY: OBSTETRICS. Edited by *Joseph B. DeLee*, A.M., M.D., Professor of Obstetrics, University of Chicago Medical School; Attending Obstetrician and Medical Director, Chicago Lying-in Hospital and Dispensary. **GYNECOLOGY.** Edited by *J. P. Greenhill*, B.S., M.D., F.A.C.S., Attending Gynecologist, Cook County Hospital; Associate in Obstetrics, Northwestern University Medical School. Series 1931. Cloth. Pp. 665, with numerous illustrations. Price \$2.50. Chicago: The Year Book Publishers, Inc., 1932.

The 1931 volume was subjected to certain changes in editorship, that is, Joseph B. DeLee is now the sole editor of the section on obstetrics and J. P. Greenhill succeeded the late J. O. Pollack in editing the section on Gynecology. As heretofore, this volume is a handy review edition of the essential 1931 literature of this phase of medicine, with which the busy practitioner and specialist find it more difficult to keep abreast. In smaller communities where complete library facilities are lacking these year book volumes are a necessity for the aggressive physician and surgeon. The section on Obstetrics comprises 299 pages and deals with the following topics: (1) Pregnancy-physiology: abortions, complications and the toxemias; (2) Labor—general: analgesia and anesthesia, complications, operative obstetrics, and uterine hemorrhage; (3) Puerperium-general: sepsis; (4) The New Born: physiology, complications, the placenta; (5) Miscellaneous. The section on Gynecology divided the 1931 literature as follows: General Principles, Diagnosis, Sterility, Ectopic Pregnancy, Operative Technic and Anesthesia, Menstruation and its Disorders, Infections, Glands of Internal Secretion, Benign Tumors, Malignant Tumors, and Electrotherapy and Radiology. In treating some of the reviewed articles the editors make personal comments and give their own valuable opinions.

THE PRACTICAL MEDICINE SERIES COMPRISING EIGHT VOLUMES ON THE YEAR'S PROGRESS IN MEDICINE AND SURGERY: GENERAL THERAPEUTICS. Edited by *Bernard Fantus*, M.S., M.D., Professor of Therapeutics, University of Illinois College of Medicine, and *Louis B. Kartoon*, B.S., M.D., Instructor of Medicine, University of Illinois College of Medicine. Series 1931. Cloth. Price, \$2.25. Pp. 467, with 53 illustrations. Chicago: Year Book Publishers, Inc., 1932.

To keep abreast now with the ever increasing literature on medical subjects fairly becomes an Herculean endeavor. Even though one is able to obtain much of the printed material, it has become a science to sift the wheat from the chaff. The foregoing year book on General Therapeutics in addition to a valuable collaborator, is edited by the same authority as in previous years. His wide experience, plus his broad scholarship assures an authoritative and precise presentation of the outstanding and salient contributions on this subject. The classification of the contents under discussion is relatively simple, but the subjects or sub-headings are as diversified as the contributions under consideration. The preface is an important supplement as it calls attention to what the editors in their wider judgment consider outstanding. The work has the particular virtues of conciseness, brevity and clarity. We highly recommend it to the progressive practitioners of medicine.

THE PRACTICAL MEDICINE SERIES COMPRISING EIGHT VOLUMES ON THE YEAR'S PROGRESS IN MEDICINE AND SURGERY: NEUROLOGY. PSYCHIATRY. Edited by *Peter Bassoe*, M.D., Clinical Professor of Neurology, Rush Medical College of the University of Chicago, and *Franklin G. Ebaugh*, A.B., M.D., Professor of Psychiatry, University of Colorado Medical School; Director, Colorado Psychiatric Hospital; Associate Director Division of Psychiatric Education, the National Committee for Mental Hygiene. Series 1931. Cloth. Pp. 471. Price \$2.25. Chicago: The Year Book Publishers, Inc. 1932.

The present volume once again presents the salient and important contributions in Neuro-psychiatry of the past year, 1931, to the medical profession. The editorial responsibility is now shared by Ebaugh, who has undertaken the burden of presenting the psychiatric side of the work. Students of this specialty are therefore assured that the increasing bulk of yearly literature will here be presented in the form of critical digests, rather than haphazard collections of abstracts. Contributions in this field for the year 1931 are marked by sustained volume but not by anything that offers solution to the many vexing problems in this department of medicine. For example, the etiology of multiple sclerosis and that of encephalitis and polio-myelitis still remains obscure. The work discusses several new types of encephalo-menigitis, multiple neuritis, arachnitis, leptomenigitis and serum reactions. The evaluations of the work done are here critically presented with valuable commentaries wherever the case requires.

THE STORY OF SCIENCE. By *David Dietz*, Fellow of the Royal French and American Astronomical Societies; Lecturer in General Science, Western Reserve University; Member Ohio Academy of Science, etc. Cloth. Price \$3.50. Pp., 387 with 16 illustrations. New York: Sears Publishing Company, Inc., 1931.

Here is an extraordinarily interesting work that should be read by all—both professional and lay persons—for the pleasure and information that it conveys—information on a topic that is perennially new to us in spite of its antiquity, namely the subject of Man in relation to his environment. The story of Science as here presented is consumately planned and brought down to the comprehension of the average reader. It is written in an easily and understandable style that in spite of material which under ordinary circumstances would be beyond the "ken" of all except the specially trained, now requires nothing more than average education to comprehend. In other words, a vast amount of scientific knowledge and information is here presented in what might be said a predigested form.

The contents are divided into four sections, each dealing with a special topic of science. Part I, discusses the Story of the Universe and deals with the astronomical side of the subject. It discusses, for example, the scale of the universe and the contents therein—the sun and its satellites, its structure and extent. Part II, deals with the facts regarding our earth—its record, genesis, its interior, exterior and its changing surface. The chapter of the "Record of the Rocks," for instance, is a fascinating exposition in popular paleontology and geology. Here we see a verification of Emerson's cryptic statement, "Everything in nature is engaged in writing its own history." The ceaseless drama of change is depicted by a reconstruction of the past history of the earth on the scale of our geological time-table. It is a stupendous and awesome drama, the like of which seldom touches us in our everyday experience. It covers a period of something close to two billion years. The author in simple descriptive and monosyllabic words, has managed to show us the grandeur of passing time and its footprints.

Part III is a fascinating exposition of the microcosm. It is the story of the atom. This section presents a clear picture of the nature of matter, the structure of the atom, the facts regarding energy, radiation, the quantum theory and the Einstein theory, i.e., wave mechanics and relativity. Part IV, discusses the story of life—its nature and unity—from the unicellular simple organism to the highest differentiated form, Man.

The book contains a generous bibliography and an index. The entire subject, vast as it is, has

been splendidly and courageously handled. It is more fascinating than fiction and by the same token more interesting. We recommend it highly to all readers.

PHYSICIANS' MANUAL OF BIRTH CONTROL. By *Antoinette F. Konikow*, M.D., author of "Voluntary Motherhood." Cloth. Pp. 245. Price \$4.00. New York: Buchholz Publishing Co., 1931.

When the young doctor establishes himself in his community, the earliest and eager solicitor of his aid are usually the lay people who hope that he possesses something new that will enable him to disseminate adequate and scientific information which will permit voluntary limitation of the size of the family and at the same time retain for them all of the original marital happiness. The young physician's answer to this sort of consultation is an increasingly sad reflection on the medical teaching. Contraceptive information is available for both general practitioner and specialist in a form apparently unknown to them, and must be culled from books of pioneers of this subject. The author has for many years been engaged in spreading the information to her patients—private and clinic. The book is the result and analysis of her own experience. The author makes easier the "busy practitioner's" effort by devoting a preface page in which she has indexed the more important material with italicized personal comments: Selecting and Fitting a Pessary, "Be sure to read this"; Pessaries to be Used in the Average Cases, "a handy table"; etc. The author reviews and evaluates all contraceptive measures, discusses their merits and demerits and why certain forms of birth control are now effective in certain individuals than in others.

The vaginal diaphragm with the use of an antiseptic paste or spermicide followed by douching at a later appointed time is advocated as the most efficacious and the most satisfactory method of prevenception. The methods of fitting a pessary are admirably outlined. The instructions to the patients are listed. It is surprising that the author omits the use of the diaphragm inserted which the reviewer finds to be valuable and in certain cases a necessity.

The last part of the book is devoted to the analysis of the author's own statistics, thus 943 cases were personally seen by the author between the years 1929 and 1930; another series of 415 patients were seen between 1928 and 1929 but were studied by questionnaire. It is more difficult to follow this part of the book. There is room for much improvement, but this is lacking in other works, nevertheless, the greater bulk of this book contains suggestions of great practical value and hence is recommended to the busy practitioner.

INTERNATIONAL ABSTRACTS

Electrosurgical Tonsillectomy: Advantages and Limitations of the Fractional Electrocoagulation Method. A. R. Hollender, M.D.

Annals of Otol., Rhinol., and Laryngol., (March) 1932.

Although surgery probably will continue to be the method of choice for the removal of tonsils in the large majority of cases, radiation therapy and diathermy for special cases merit consideration, in view of recent advances in these fields. While roentgen irradiation and radium therapy still claim their adherents, they are not now so commonly employed as diathermy.

The author reviews the electrosurgical methods in common use and condemns the one-stage operation. If the removal of tonsils in one sitting is contemplated, surgery is preferable to any substitute method. The fractional or multiple stage method is preferable to others because it has proved more satisfactory in various ways.

A comparison is made of 200 surgical removals with an equal number done by electrosurgery. Factors such as anesthesia, local reaction, period of convalescence, hospitalization, hemorrhage and complications are considered.

The indications for electrocoagulation of the tonsils are analyzed and the disadvantages discussed. The advantages, also, are enumerated, calling attention particularly to the fact that patients exhibit little or no fear for electrosurgery and submit to it without hesitation. Attention is also directed to the fact that electrosurgical removal of the tonsils does not guarantee a bloodless procedure. It is, however, nearly always attended with no primary or secondary bleeding. Emphasis is made that shock, always an important consideration in surgery, is definitely avoided by electrocoagulation.

The author's conclusions are:

1. While diathermy for removing the tonsils has gained popular favor and has become the method of choice of some specialists, its use is not to be recommended as a substitute for surgery for the majority of cases.

2. There are, however, definite advantages in an adequate substitute method when surgery is considered hazardous in the presence of certain systemic diseases.

3. Since electrocoagulation of the tonsils is a scientifically sound method for selected cases, the specialist should familiarize himself with its technic.

End Results in Tonsillectomy by Electrocoagulation Due to Improved Technic. J. A. Haiman.

Med. J. and Rec., 135:471, (May 18) 1932.

The author presents an improved technic in tonal electrocoagulation by means of utilizing a two-

pronged, single electrode which does away with the indifferent block-tin electrode. The electrode in question is a bipolar, self-contained instrument which projects one-quarter inch from its insulated handle, and are two millimeters apart. It promotes coagulation in a lateral direction between both points of the electrode. The anesthetic consists of having the patient dissolve two phedrocaine (Collwell) tablets on the tongue. If necessary the throat is further sprayed with phedrocaine oil. Each tonsil is coagulated on alternate weeks, usually requiring from three to six treatments each. The author's conclusions are as follows:

1. Electrocoagulation of tonsils with the bipolar tonsil electrode is under definite control of the operator and therefore may be regarded as a true, scientific procedure.

2. Constant duplication of end results can be obtained, with the elimination of heretofore existent dangers of coagulating into the peritonsillar vessels.

3. Bipolar electrocoagulation permits of removal of all of the tonsillar tissue and affords end results comparable to the orthodox surgical procedure.

4. Tonsillectomy by electrocoagulation is a valuable contribution to rhinolaryngological surgery.

Sunburn Tanning. Comment on the Action of Light on the Skin. Herman Goodman, M.D.

Arch. Derm. and Syph., 25:15, (Jan.) 1932.

The author's summary follows:

I have reviewed the factors of pigmentation of the normal skin and discussed the features of induction of pigmentation of the white man's skin by radiation from solar and artificial sources. The subject of sensitizing the skin to make it more amenable to the production of pigment through erythema-producing radiation is touched on, particularly as it affects cosmetic tanning, photogenic diseases and eruptions of the skin partially responding to solar radiation.

This entire subject of the biology of pigment in relation to vital ultraviolet radiation is important in view of the wide use of emanators of this type of radiation and the equally wide use of medicines of the coal tar derivative group, since it appears that coal tar quotients by ingestion in some persons induce a sensitivity to ultraviolet radiation.

Local responses to the topical application of coal tar products and to erythema-producing ultraviolet rays produce conflicting results as far as pigmentation is concerned. Such a combination is offered in the treatment for vitiligo and leukoderma, and a like combination is also offered as the solution of the etiology of perfume dermatitis.

The biologic reaction of the skin to sources of light must also be considered in cancer of exposed surfaces of the skin and in some industrial dermatoses.

The Influence of Balneotherapy on the Permeability of the Choroid Plexus to Antisyphilitic Agents. W. M. Werzilov, A. R. Chougame and K. M. Freydene.

Ann. de Derm. et Syph., 2:775 (July) 1931.

Using apes as experimental animals, these authors sought to determine the influence of sulphur baths on the penetration of the choroid plexus by antisyphilitic remedies. The animals were immersed in the baths (rich in hydrogen sulphide) following administration of the various drugs. The results may be summarized as follows: 1. Penetration of iodides and of mercury was greatly favored, large concentrations of each being recovered from the spinal fluid. 2. The same was true of bismuth, with the additional observation that the simultaneous use of bismuth and neoarsphenamine greatly augmented the penetration of bismuth into the spinal fluid. 3. In the case of neoarsphenamine, twice as much was recovered from the experimental animals as from the controls. No exception to this was found in several hundred trials. 4. Bismuth and neoarsphenamine penetrated better than iodides. 5. Penetration of each drug was enhanced either by elevating the dosage or by increasing the concentration of hydrogen sulphide in the bath. The question was raised as to whether the effect was not partly due to inhalation of hydrogen sulphide. It was concluded that, while these procedures may not be readily applicable to man (because of toxic effects observed in the animals), they are deserving of further study as a possible improvement over existing methods of treatment for neurosyphilis.—*Arch. Derm. and Syph.* (Jan.) 1932.

The Electrosurgical Unit As An Aid In General Surgery. H. Lilienthal, M.D.

S. G. & O., 52:513 (February 15) 1931.

The author has done several operations on the chest, abdomen and breast. In his small series there has been no recurrent or secondary hemorrhage and he is of the belief that wound infection is definitely reduced. His opinion is that the method promises to be a great aid in general surgery. In his admittedly small number of cases he has found healing to be normal in rate and firmness, although I notice that he recommends that the sutures should be left longer than when the wound is made with an ordinary scalpel. He has been unable to form any conclusions as to the likelihood of keloid. When using local anaesthesia there have been more subjective reactions of pain and discomfort than when the scalpel was employed.

In general surgery he thinks that the principal use of the method will be for incisions in soft parts, including the skin, and also in the removal of lesions outside of the body cavities.

He states that outstanding features of electrosurgery are saving of time, greater assurance of asepsis, and reduction of what may be called the "massage effect," so dangerous in operating through infected or neoplastic structures.

Actinotherapy at Tuberculosis Dispensary. G. Jessel.

Lancet, 1:1182 (May 30) 1931.

According to Jessel, artificial light treatment can be successfully given at tuberculosis dispensaries under the control of local authorities. It is especially useful in cases of lupus and allied skin conditions, adenitis with and without softening, and other superficial conditions. It is much less effective in the treatment for tuberculous disease of the larger joints and bones, which should be treated in special residential institutions. In the treatment for lupus, a combination of general light therapy with local treatment (e. g., Kromayer lamp) is usually necessary, and the carbon arc bath is to be preferred to the mercury vapor lamp for general irradiation. Prolonged exposure to weak carbons is preferable to brief exposure to strong cored carbons. It is efficacious, safe and particularly suitable for use by tuberculosis officers who have other duties to perform outside their dispensaries. To obtain the best results, actinotherapy needs frequently to be combined with various forms of local treatment; e. g., the use of suitable caustics in lupus and the aspiration or incision of abscesses.—*Arch. Derm. and Syph.*, (October) 1931.

Treatment of Warts. E. D. Osborne and E. D. Putnam.

Radiology, 16:340 (March) 1931.

During the past three years, Osborne and Putnam have entirely discarded the use of fractional, repeated doses of roentgen rays in the treatment of plantar warts. Their proportion of cures has risen 20 per cent since employing the single, massive dose. They have never repeated the dose inside of two months, and they have seen warts disappear ten weeks after the one initial, maximum dose. They have never given more than two maximum doses to a single wart. Out of a total of 322 patients with plantar warts, 220 were treated with roentgen rays, and the result was noted. Of these, 176, or a percentage of 80, were cured with one treatment; 17 patients, or a percentage of 7.7, were cured with two roentgen treatments, giving a total percentage of 87.7 cured by the use of roentgen rays alone.

Diathermy and Other Electrical Agents in Infantile Paralysis. H. Bordier.

Brit. J. Actinotherapy, 5:201 (Jan.) 1931.

The use of the combination of roentgenotherapy, diathermy and galvanization is highly recommended. Roentgenotherapy should be applied at the earliest possible moment. Diathermy is used to combat the hypothermia of the atrophied muscles. Later in the disease galvanization is used daily and for a long period of time. Something of the technic of each method is described. Results of other workers using the same methods are reviewed. Ten of the author's cases are summarized, in four of which the patient was regarded as cured; all but one of the others showed great improvement.

The Effect of External Thermal Stimuli on Gastric Secretion. L. Bogendörfer and A. R. Sell.

Deutsches Arch. f. klin. Med., 169:166 (Dec.) 1930.

The effect of hot and cold cutaneous stimulation was tried on 170 normal and sick persons. Heat decreased both the amount and the acidity of the gastric secretion, while cold increased both. The influence of volume appeared before that on acidity. The location of the point of application of the stimulus was not of decisive importance.

By alternating the stimuli, a "play of secretion" may be brought about. This lively reaction to thermal stimulation was absent in gastric carcinoma, even when there was no anacidity.

A comparison between the action of histamine and the effect of cold stimuli showed that the effects were equal. When used together, they reinforced one another.

The authors suggest that these observations may have therapeutic value.—*Am. Jour. Dis. Child.*, June, 1931.

Preparation and Handling of Radio-Active Bodies.

F. Heim de Balsac, E. Agasse-Lafont and A. Feil.

Presse méd., 38:1171 (Aug. 30) 1930.

A study of the dangers attending the preparation of cerium salts, thorium nitrate and salts of other rare earths possessing radio-active powers shows that workers can be adequately protected by using specially constructed tables on which all work is done under glass, with strong suction to remove gases. The workers should wear rubber gloves and use forceps when handling vessels containing radioactive bodies. Anemia, leukemia and radiodermatitis, the most frequent of the diseases found in workers in these chemicals, were avoided when these precautions were taken.

Roentgenography as an Aid in Obstetrical Diagnosis. Julius Jarcho.

Am. Jour. Surg., 12:417 (June) 1931.

From his studies, the author presents the following summary:

Roentgenography has proved its value in obstetrics principally for the following diagnostic purposes:

1. For the positive diagnosis of pregnancy in obscure cases. This can be accomplished by the fourteenth week, sometimes earlier. In some of the author's cases, the clinical findings strongly suggested uterine fibromyomata and only the roentgenogram saved the patient from an unnecessary hysterectomy.

2. For the recognition of twins. Particularly in obese patients, there may be difficulty in hearing two separate fetal hearts or palpating a multiplicity of fetal parts; vice versa, the same fetal heart may sometimes be heard clearly in widely separated locations, leading to an erroneous diagnosis of twin pregnancy. In such cases, roentgenography gives a definite answer.

3. For differentiation between pregnancy and

tumors. Here roentgenography supplements findings by the Aschheim-Zondek test.

4. For diagnosis of tubal and ovarian pregnancy.

5. For revealing the presence of a fetal monster. The recognition of anencephalus and other forms of fetal monstrosity is greatly facilitated by x-ray study.

6. For giving information as to the presentation and position of the fetus. As shown by several of the author's films, the exact presentation and position are revealed with far greater accuracy than can be determined by physical examination alone. This also obviates the need of a pelvic examination.

7. For demonstrating the mechanism of labor.

8. For supplying a more accurate method of pelvimetry than any heretofore proposed and furnishing a means of cephalometry *in utero*. This subject will be discussed in a subsequent paper appearing in a future issue of *The American Journal of Surgery*.

Chemical and Electrolytic Lesions of the Mouth Caused by Artificial Dentures. Everett S. Lain, M.D.

Arch. Derm. and Syph., 25:19, (Jan.) 1932.

Lain's summary and conclusions are:

Routine examination of the mouths of forty-five consecutive adults wearing full plate dentures revealed that 42 per cent had either stomatitis or glossitis.

It was found that many of these cases were due to neglected oral hygiene, malocclusion or trauma caused by imperfect adaptation of the plates to the alveolar processes.

In several cases, however, after all ordinary etiologic factors had been eliminated, it was concluded that the poisonous constituents of the dental plates were the offending agents.

Analyses of the plates in two of these cases revealed porosity with free mercury sulphide and sulphur in one, and aluminum powder with a trace of zinc in the other.

Macroscopic and microscopic examination of other offending plates indicated undercuring with porosity.

Each of thirty consecutive adults examined, whose mouths contained two or more metals of different potentialities, registered from 1 to 40 degrees of galvanic current on the micro-ammeter.

One case of a metallic upper plate with amalgam fillings below registered a dangerously high degree of current.

A large percentage of the patients complained of symptoms, such as metallic taste, burning tongue and acute dental nerve sensations, or presented visible mucous lesions adjacent to or between metallic dentures, from which, after a process of elimination, it was concluded that the etiologic factors were galvanic discharges.

Control experiments were made outside of the mouth with various metallic dentures immersed in buffered solution (p_H 6.2 to p_H 7.2). Other tests were made inside the mouth between metals having the same electric potentialities.

Further research is necessary before the dangers of electric discharges in the mouth caused by dissimilar metallic dentures can be fully evaluated.

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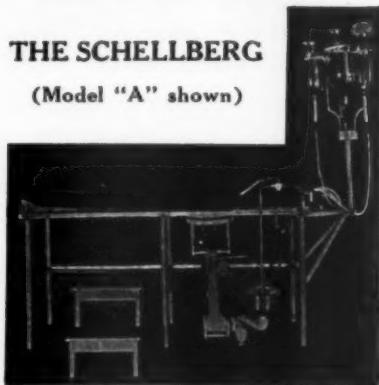
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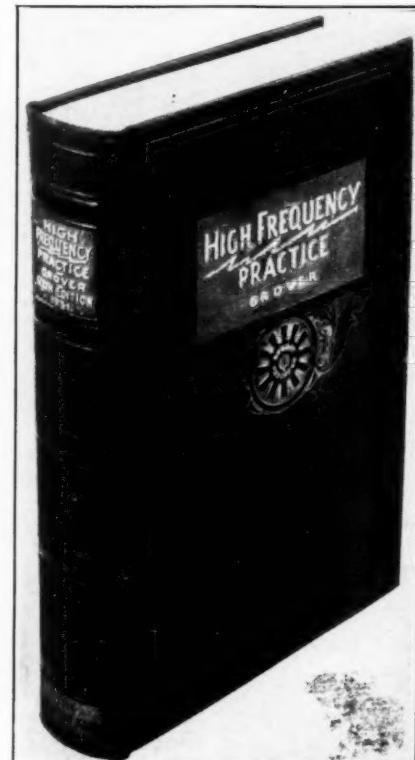
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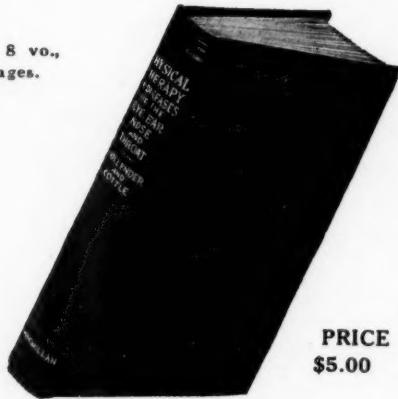
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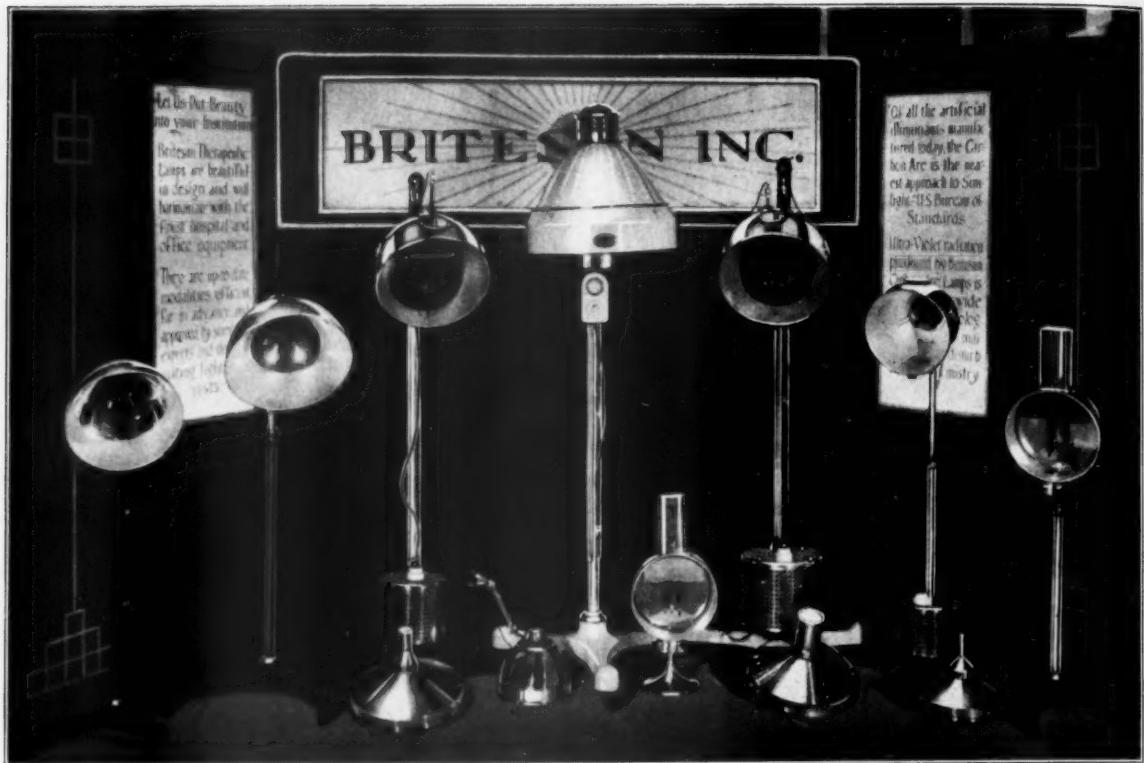
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